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Original Articles.

CARBON MONOXIDE POISONING.

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MOST writers on the subject believe that carbon monoxide poisoning receives but scanty attention from physicians, and this is probably so since the average physician of city practice sees but few cases. Edsall points out that carbon monoxide poisoning in addition to the acute illness and possible fatality which it may cause is also responsible for the production of certain subacute or chronic disorders, and Sedgwick considers the various obscure consequences as more important than the acute poisoning. Its sequelae are varied in nature and, unless the history of the acute poisoning is known, are difficult of interpretation. Acute poisoning with its sequelae has been, of course, much better studied than the chronic forms as it is difficult to prove that carbon monoxide has been the cause of conditions found in certain persons living under bad hygienic circumstances.

Professors Sedgwick and Nichols, in their excellent report on "Coal and Water Gas," as given in the Sixth Annual Report of the State Board of Health, 1885, mention the case of a lady in fair health who began somewhat suddenly to suffer from intolerable headaches. They were worse on awakening from sleep, and wore off gradually during the day to return on the following morning. After much effort to diagnose and control the headaches her physician was told of or discovered a faint odor of illuminating gas in the room. A leak was found in a pipe running under the floor, and when it was stopped the patient quickly recovered. This was one of the simpler forms of poisoning from illuminating gas which would not be so obscure if one had the cause in mind.

Another source of poisoning is the escaping of gas from broken mains in the earth and thence into houses. This is particularly so in winter when the ground is frozen and perhaps covered with a coating of ice. Even if the ground is bare, the temperature of the houses is considerably above that of the outer air, converting them into so many chimneys to which the air in the ground is drawn from all sides. Leaks and resulting poisonings of this nature are much more obscure and difficult of solution. Pettenkoper has shown that the gas may travel many yards through the ground and reach a dwelling a considerable distance from the leak, while the odor is lost in transit. This method of producing carbon monoxide poisoning probably forms now but a trifling per cent. of the cases and is almost disregarded by the majority of writers since Pettenkoper's time.

Sedgwick recently has called attention to the insidious effects of constantly inhaling illuminating gas in houses and public places. The intoxication by carbon monoxide in factories and foundries is not uncommon, but this paper is not concerned with poisoning produced by manufacturing processes.

It is believed that obscure poisoning of various kinds plays a large part in diminishing vital resistance and in increasing susceptibility to disease. The number of acute cases is ever increasing. There are many reasons for this, such as the greater use of household appliances for cooking and heating, especially when they are used in small and ill ventilated rooms. Professor Sedgwick in a recent article in the *Journal of Infectious Diseases*, November, 1911, on "The Relation of Illuminating Gas to Public Health," calls particular attention to the increasing manufacture of water gas as the cause of a great number of carbon monoxide poisoning cases in recent years. In 1884 Professors Sedgwick and W. R. Nichols and Dr. Samuel W. Abbott predicted that if water gas should replace coal gas in Massachusetts the consequence to public health would probably be dangerous if not disastrous. Other experts of eminence took precisely the opposite ground and even ridiculed the possibility of any such consequence. Among these were Professor C. F. Chandler of Columbia University and the distinguished English chemist, Dr. E. Frankland, who stated in a letter read during the hearings, "I have no hesitation in saying that it (water gas) may be used with safety both in public buildings and private houses. I should be delighted to substitute this pure and powerful illuminating agent for the gas with which my house in London is at present supplied, although it is used in all the bedrooms."

Previous to 1885, according to Dr. S. W. Abbott, there had been only four deaths during twenty years in Massachusetts. It is a question how much reliance can be placed on this statement because of imperfect methods of recording cases. As a result of the coal and water gas agitation the Massachusetts Legislature in 1885 created a State Gas Commission and since 1888 the Commissioners have been required to keep a record of all fatalities and other subsequent results from gas poisoning.

Let us pause for a moment at this point to consider the nature of coal and water gas. Poisoning from pure carbon monoxide is extremely rare, because opportunities for its occurrence are unusual; it has occurred in laboratories and factories.

Intoxication with illuminating gas is commonly regarded as being practically carbon monoxide poisoning, but experiments have shown that its poisoning is usually more severe than from simple carbon monoxide. Nevertheless, the latter is the chief agent.

Illuminating gas is poisonous whether made from the destructive distillation of bituminous

coal, from wood or other organic substances, or derived from coal and water by their action on each other at high temperatures (water gas). It is, nevertheless, a single gas of uniform composition, and while the mixture may vary from day to day within narrow limits, the expressions "coal gas" and "water gas" stand for a reasonably definite substance or mixture. Various analyses by different chemists have shown that water gas contains about four times as much carbon monoxide as coal gas. The amount of carbonic oxide requisite to produce a fatal result varies considerably with different individuals. A variety of conditions enters into this factor. Carbon monoxide enters the system solely by inspiration unless experimentally introduced. Its chief effect is to displace the oxygen from oxyhemoglobin and form carbon monoxoglobin, thus rendering the affected portion of the red blood corpuscles incapable of performing their function as oxygen and carbon dioxide carriers.

Sedgwick and Nichols carried out numerous experiments on the relative effects of coal and water gas on animals. Their experiments and conclusions are given under four headings:—

1. With ordinary gas fixtures it is generally difficult to get more than three per cent. of illuminating gas into an ordinary room. By using one burner alone, it is difficult to exceed one per cent. The "natural ventilation" through walls and cracks is the reason for this.

2. With coal gas it is a matter of some difficulty to get into an ordinary apartment through the ordinary burners gas enough to produce upon healthy animals distinctly poisonous effects. With water gas, on the contrary, it is comparatively easy to get into an ordinary apartment through the ordinary burners gas enough to produce poisonous and even fatal effects. The same quantity of gas would be present in the room in either case. Water gas does not flow more freely or accumulate in the room any more than coal gas.

3. It does not follow that because one illuminating gas contains three, four or five times as much carbonic oxide as another that it is, therefore, only three, four or five times as dangerous to life.

4. Carbonic oxide is not a cumulative poison. That is, the breathing of a small quantity for a long time is not equivalent to the breathing of a large quantity for a short time. A similar conclusion may be drawn in all the constituents of illuminating gas. These authors state: "From the fact that carbonic oxide is not a cumulative poison and from the considerations concerning the rapid increase of danger above and the decrease of it below the 'danger line,' it follows that within certain limits the less carbonic oxide there is in illuminating gas the safer it is for public use, for about the danger line a very moderate decrease of carbonic oxide may very greatly enhance its safety, while a moderate increase may greatly multiply the dangers arising from its use. Far above and below the danger line the effect of slight variations is very little."

The record of the experiments with animals conducted by Professors Sedgwick and Nichols to prove the above conclusions may be found in the Sixth Annual Report of the State Board of Health.

Since 1890 the careful records of the State Gas Commission and the Medical Examiner's office show that more than 1,200 deaths from carbon monoxide poisoning have occurred in Massachusetts in a twenty-year period from 1890 to 1909. Sedgwick and Schneider in their recent article in the *Journal of Infectious Diseases* have compared the mortality from scarlet fever, measles and illuminating gas in Massachusetts for a period of twenty years. For example, the death-rate was:—

	Scarlet Fever	Measles.	Illuminating Gas.
1887	28.80	22.08	0.29
1898	5.25	2.05	2.91
1909	7.86	4.77	3.10

I have merely shown the changes at the end of two ten-year periods—the authors give the death-rate for each year in tabular form.

Since 1890 some companies have made only water gas, others only coal gas, while many have made a mixture of the two, and some have made both intermittently. For a short time (1900) the amount of water gas manufactured was much less, and there was a corresponding diminution in the number of gas poisoning cases. Sedgwick and Schneider give an interesting table derived from the Reports of the Gas Commissioners showing the amounts of illuminating gas (coal gas and water gas) manufactured each year in Massachusetts. Figures in this table show a marked increase in water gas and a corresponding increase in the number of deaths. In 1886 the total coal and water gas made in million cubic feet was 2,625, and water gas 12, with no deaths. In 1896, total 4,639, water gas 3,090, and 63 deaths. In 1908, total 10,902, water gas 4,862 and 148 deaths. In 1900 and 1901 when the New England Gas and Coke Company installed a large coal gas plant in Everett, the effect of the introduction of their product was to cause an actual decrease in the water gas manufacture in the state and in 1901 a significant diminution in the number of deaths from gas poisoinng.

There were 174 cases of illuminating gas poisoning admitted to the Boston City Hospital from 1900 to 1910 inclusive. Of this number, 35 had a definite history of attempted suicide, and 27 had been drinking more or less heavily before the accident; 8 gave a history of being overcome while at work, principally in trenches; 2 cases were due to slot gas machines, the persons going to bed with the gas lighted, the gas giving out in the night but being started up in the early morning by somebody depositing the requisite coin. There were half a dozen cases of blowing out the gas, this accident occurring with

foreigners of the peasant type recently arrived in America. Most of the non-fatal cases fully recovered in from two to four days. In cases that recovered from coma in two to four days and then died, the death was usually caused by pneumonia or by some pathological condition which had existed prior to the exposure and which was precipitated by the gas poisoning. All of the nineteen cases in this series which died were accidental as far as could be ascertained. No one of the 35 cases of attempted suicide proved fatal. Eleven died from gas poisoning without complications, three cases were complicated by pneumonia, two by burns, one by uremia and one by cerebral embolus. With reference to the subsequent effects of acute gas poisoning, we have been unable to find the record of but three re-admissions, all men and admitted for alcoholism.

It would be natural to ask how it is that the Boston City Hospital had only 174 cases admitted in eleven years when in the year 1910 alone there were 80 cases of gas poisoning in the city of Boston. It is probably the only point which this paper will show, viz., that with the appalling number of cases as shown by the Report of the Gas Commission of Massachusetts so few ever have a chance for treatment because of immediately fatal results. Forty-two of the 80 cases in Boston in 1910 died, leaving 38 non-fatal cases, 21 of whom were received at the hospital.

The crux of the matter is that the increased amount of carbon monoxide in water gas makes a small volume of gas fatal in a much shorter time. Coal gas by its very strong odor made its presence known sooner to other inmates of the house, and while the victim might be unconscious when found, he had not as a rule inhaled sufficient carbon monoxide to make treatment useless.

A comparison of figures shows that with the large amount of water gas, containing about four times as much carbon monoxide as does coal gas and having a less striking odor, many victims are fatally poisoned by a volume of gas which in the same cubic space and length of time would have resulted only in unconsciousness and are therefore dead or nearly dead when found.

The cases were as follows:—

	Admitted to the Boston City Hospital			In Boston and Suburbs					
				Fatal Cases			Non-Fatal Cases		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1900	5	1	6	21	3	24	19	6	25
1901	13	6	19	16	0	16	159	4	163
1902	5	7	12	25	3	33	49	7	56
1903	8	9	17	20	6	26	25	25	50
1904	9	5	14	22	2	24	19	9	28
1905	8	1	9	22	6	28	22	11	33
1906	10	4	14	17	14	31	28	15	43
1907	9	8	17	45	25	70	32	15	47
1908	21	8	29	26	16	42	33	9	42
1909	13	2	15	36	8	44	22	14	36
1910	13	9	22	36	9	45	33	10	43

The seasonal distribution was as follows:—

January	15	July	2
February	10	August	7
March	16	September	9
April	19	October	15
May	11	November	18
June	9	December	40

In most of our cases the patients felt a sense of drowsiness, to which they yielded and could tell nothing more about themselves. A few complained of headache and most all had severe nausea and vomiting. Some noticed the odor of gas in the room, but paid no attention to it and remembered nothing else until they recovered consciousness in the hospital.

A rather large number of the cases have this record:

Skin mottled and lips and lobes of the ears cyanosed. Unconscious; stertorous respiration; involuntary dejecta; odor of gas on breath. In one case the urine drawn by catheter had a strong odor of gas. The eyelids react when the lashes are touched. Conjunctivae suffused. Pupils contracted but react to light. Eyeballs immovable. Teeth slightly clinched. Mucus on lips. Arms slightly flexed at elbows. In one case which showed the above signs, the man had gone to bed with the gas lighted in a house supplied by a slot machine. At five in the morning, another inmate put a quarter in the machine and the patient was found at seven o'clock in the condition as detailed above. The gas company estimated that from 3 to 3.5 feet of gas had escaped into the room. The patient was mentally confused for several days but was discharged well after remaining nine days in the hospital. Case 11 showed rigid flexion of forearms and wrists and the feet in plantar flexion.

Most of this series where there were marked reflex changes the patients were suffering from organic nervous disease before the gas poisoning.

Treatment. Prophylaxis is of the greatest importance. Sedgwick and Schneider think that we should return to the use of coal gas exclusively, believing that with its much lessened power to poison, the majority of cases would be discovered in time to save their lives. Even if one-half of the deaths are voluntary or suicidal, as physicians we cannot overlook this part of the question. Within the last few years the state of Massachusetts has sought by law to regulate the sale of poisons and firearms, and may well regard with concern the general distribution to the public of a dangerous gas so readily available for self destruction. It has been argued even by some excellent physicians that persons who have once displayed a suicidal intent may as well not be thwarted since sooner or later they will carry out their design. We all know of young persons who during a temporary despondency have considered suicide—the thought may never occur to them again, but if a too easy means is at hand they may yield to the impulse. We know of many persons who have confessed that they have considered suicide at some time in their lives. Again, when a form of suicide is vividly detailed

by the press, repetitions occur for a time in various parts of the country.

In the treatment of acute poisoning, the cases received principally local heat, fresh air and cardiac stimulation. In a good many cases oxygen was given, although some authors regard it as useless. In a few selected cases venesection was used with apparent relief. Cardiac stimulation was given when necessary.

I wish to express my thanks to the visiting staff for the privilege of referring to the cases, and to Dr. T. Leary, medical examiner for Norfolk County, for helpful suggestions.

OLD AND RECENT IDEAS CONCERNING TREATMENT OF FLAT-FOOT.

BY H. W. MARSHALL, M.D., BOSTON.

THE importance of foot defects, included in the class of strains and weaknesses of the feet, can be appreciated properly only from the enormous numbers of persons who are wearing orthopedic appliances or shoes of orthopedic design. Arch supports, shoes with correct shapes, shoes with flexible shanks, others with rigid shanks, and shoes with heels or soles constructed to alter the position of the feet in weight-bearing attitudes, are very familiar now in many stores in all large cities.

Additional interest is lent to the present situation by the circumstance that wear of these special shoes and supports is determined now more by business enterprise, and by fancies of customers, than by medical advice and supervision. This condition of affairs has arisen naturally because such foot ailments in the majority of instances are not very grave in character. The general public is free to choose without medical opinion, and with good success very often, such kinds and varieties as appeal to their fancies, or those styles which friends have found to be beneficial.

Orthopedists and some enterprising shoe men during the period of development of new ideas about flat-foot have studied the anatomy of the feet again with care, so that nearly all important pathological changes have been described now in great detail.

It is very generally known there are longitudinal and transverse arches in the feet that can become weakened. The anatomical arrangement of the small bones of the feet, their normal positions and pathological variations have been examined; and it is well understood that, when weight is borne, pressure from above tends to push the astragalus downward and inward as it rests upon the os calcis beneath. Also that there may be considerable tilting of the calcaneum when the bones of the leg, with the astragalus, in bad cases of flat-foot, tend to slip down off the inner side of the foot until they are checked by ligaments and muscles, and as the foot tends to slip forward.

It is a familiar fact that these tendencies are resisted by the calcaneonavicular, the deltoid and the interosseous ligaments; and that when marked relaxations occur considerable slipping in the astragalonavicular joint takes place and that the scaphoid bone becomes very prominent. It is also known that other small joints of the tarsus are influenced in lesser degrees.

In typical flat-foot the front of the foot is forced outward and downward. The internal malleolus is more prominent, and motions of the feet are restricted. Adduction of the forefoot becomes greatly restricted, plantar flexion is limited, and dorsal flexion appears increased.

Special studies have been so numerous that a few of them only can be mentioned. R. B. Osgood[1] has studied, among other things, the strength of muscles in normal and weakened feet. He concludes that the adductors of the feet are stronger than the abductor group in normal persons, and he found in acute flat-foot that the normal average ratio of strength, 10:8, became 10:12 in weakened feet. Lloyd T. Brown[2] has considered the action of extrinsic and intrinsic muscles of the foot from an anatomical and mechanical standpoint. And the studies of Whitman, Lovett, Dane, Legg, Cotton, Feiss, Gibney, Thomas, and many others are too extensive and too important to be enumerated briefly.

It has been shown that the first metatarsal bone with its phalangeal bones is most important in locomotion, while the outer metatarsals are essential in maintaining the balance when standing.

In text-books, Whitman,[3] Goldthwait, Painter and Osgood,[4] Bradford and Lovett,[5] and others have described the two-fold function of the foot as a passive support of the weight of the body, and as an active lever to raise and propel it. And they have explained the many anatomical details which relate to development of weakness and deformities. Deformed feet of the Chinese have been made objects of study; and great attention has been paid to normal shapes of normal feet in the barefooted races. Anatomical dissections have been made which show that gradual anatomical changes in the bones take place, as the bones adjust themselves to new conditions long imposed upon them. It is now well understood that shapes of shoes have much to do with development of weaknesses and strains, that extreme styles in pointed shoes in the past contributed perhaps as much as any one thing in calling attention to foot defects, and in leading to corrections in footwear. It is known that present styles of high heels are throwing disproportionate pressures upon anterior arches, and that the latter in consequence are giving out more frequently now. It is known that, notwithstanding the fact persons possess high arches, that they suffer frequently with foot strains; and causes of foot strains, as mentioned in text-books of orthopedic surgery, are described as being

due to faulty footwear; occupations that compel unusual amounts of standing; injuries, especially fractures of leg bones at the ankle that result in subsequent abnormal pronated positions of the feet; genu valgum; debilitated states; rachitis; great increase in weight, etc.

However, in spite of the precise knowledge which has accumulated, there still are a very considerable number of persons who are made worse, instead of better, by wearing shoes of orthopedic shapes. Others are made worse by shoes with flexible shanks, many are not improved by arch supports, and some continue to have weak feet after trying all methods now in use.

These facts are as well established as the ones that many individuals are benefited; and unfavorable results need understanding if successes are to be attained with more uniformity. The first important reason for failure lies in the circumstance already mentioned, e.g., that wearing of orthopedic shoes and supports often is dependent simply upon whims of customers, upon experiences of their friends, upon persuasions of persons selling the articles, instead of upon physiological requirements of individuals' conditions. A second reason lies in the failures of physicians to understand precisely the needs of their patients; and it is interesting to trace past developments which have led to present medical ideas.

When attention was first drawn to the barefoot tribes, it was seen that forms of their feet differed materially from those found in persons who have been cramped always in shoes. As a result of these observations, correctly shaped shoes were constructed with broad toes and with room for expansion of the anterior part of the foot, and especially to avoid outward deflection of the great toes. And then it was found that some persons with very deformed feet were unable to walk in these improved styles. They were more comfortable in their own improperly shaped ones.

Long subjection to tight shoes had changed bones and ligaments structurally, so that normal shapes were as injurious to these persons as modern styles would be to savages. It came to be realized then that many individuals are no longer predatory savages, as regards their feet; and that it is necessary to fit them with shoes suited to their existing deformities. Physicians learned that in extreme cases natural shapes could be restored only very gradually, and that consideration of other factors besides forms of footwear must be kept in mind. Some foot deformities now are recognized to go so far as to necessitate forcible manipulations and operations to restore even approximately normal conditions again.

With arch supports there has been a similar negative phase in progress; and from the positive benefit which many persons have derived, others have been induced to try supports with unfavorable results. It has been found that persons with acute foot strain frequently have so much tenderness that additional pressures upon the arches cannot be endured. Others are relieved for short times, and then have slow return of painful symptoms from muscle weakness. Frequently the latter are benefited by minimizing instead of increasing artificial aids, and by exercising the feet with flexible shoes.

Flexible shoes consequently have been tried in routine manner like shoes with orthopedic shapes and as arch supports have been used; and many persons have been relieved by them, while many others find that they cannot wear flexible shoes.

From these various groups of cases, and from advocacy of single routine forms of treatment, have arisen partisanships which convincingly show that numerous deficiencies still exist in our understanding of flat-foot. There is need for understanding that physiological considerations, more than anatomical or pathological ones, furnish final solutions for difficulties in treatments. Treatments primarily should be designed to remedy physiological defects ahead of anatomical ones, although the latter must necessarily be corrected when they exist, because they prevent restoration of normal functions.

Structural defects are causes of present and future functional abnormalities, and simultaneously also they represent results of past physiological defects or primary congenital peculiarities. These more remote causes must be sought for, as it is possible to have perfect understanding of all anatomical peculiarities and of all pathological appearances, and yet be unable to deal with patients successfully when there is lack of understanding of underlying physiological forces which regulate health and weaknesses.

There ought to be unhesitating recognition that normal conditions in feet depend always upon a combination of elements, and never upon any one of them independently. These underlying factors are grouped into three divisions: first, the amount of weight borne and the lengths of times it is endured; secondly, the degree of healthy vitality existing at the particular time in ligaments and muscles supporting the arches that is represented by their strength; and thirdly, favorable and unfavorable qualities of blood circulating through the feet at the given time. This is the only working formula that is applicable universally to all cases, and it should come to mind as the most practical way of viewing each patient, instead of by special features alone in each one, such as shapes of feet, height of arches, occupations, body weights, physical conditions, etc.

All the latter considerations must be thought of, however, yet ideas of treatment must not stop at that stage for best results. These special details of each individual case should be fitted into the general comprehensive idea of the whole situation which has been stated. Broad comprehensive qualities are features in treatments that are often lacking, and it is purely a

matter of chance at present with many persons whether their shoes and supports are suited to their needs. Chosen without medical advice, and unnecessarily tried in many instances through curiosity rather than actual need, footwear and orthopedic appliances are worn frequently in complete ignorance of unfavorable consequences which are possible, the only guide observed being the degree of temporary comfort afforded. Yet practically it has been found that many persons are benefited for a time at least, although they have no ideas of physiological ways in which feet maintain their strength and function. And the principal complaint made by such persons is that they become very dependent upon arch supports, and that their feet become weakened by continued use of the latter.

The proper view to take toward various orthopedic devices and shoes is one of recognition that most of them have merits, and that they indicate the number of phases which any single case may pass through. This seems to be the correct idea in contrast to the erroneous one that some devices must be useless or harmful because some others are beneficial. For faults do not lie with shoes or supports as much as in defective understanding of conditions which lead to their inappropriate uses. All devices may be beneficial or harmful in turn in any selected case according as they are prescribed, or accidentally happen, to fit the needs that exist and that vary from time to time.

Indications and contra-indications can be determined, however, usually very easily from the general conception that has been stated. Health always represents a balanced state between various physiological elements; and treatments are directed always toward restoring usual ratios between these several forces. In health, if persons become heavier, then compensatory changes in strengths of muscles and ligaments are seen so that normal balances between pressures upon arches and muscle strengths are not upset. If the individual is very large instead of very small, then changes in absolute strengths of muscles and ligaments have, too, to be very great instead of small, in order to maintain the healthy balance. Absolute values of the same factor in different persons may vary within wide limits and yet be relatively unimportant. The most vital relationship always is the ratio between the different factors as they are combined in the same person. In order to restore normal conditions in weakened feet, pressures and strains, that are endured, can be diminished by supporting the arches or by subjecting them to less mechanical strain by rest, or by combining supports with partial rest.

Usually it is more convenient to begin treatment by increasing supports instead of diminishing amounts of daily activities of life. The ways of strengthening the arches are familiar. They may be artificially held with adhesive straps which extend around the sole of the foot upward upon the two sides of the lower leg, so that a part of the pressure upon the arches is taken by the pull upon these leg straps. Felt pads, spring steels, celluloid, rubber, and other varieties of support have been used. The strength of the foot may be increased also at times by regular exercises or by wearing limber shoes which, unconsciously to the wearer, exercise foot muscles more than when they are supported by thick soled boots. Improved shapes in shoes indirectly may help to strengthen the feet by allowing more natural shapes to be restored.

There is no certain way of estimating which variety of treatment will prove most beneficial except by a few simple preliminary trials with supports of some sort, alternating them with exercises; but these quickly furnish the required information.

Usually persons who walk and stand very little, and who have been wearing heavy soled shoes or supports constantly will be benefited by flexible shoes and by diminishing artificial aids, provided blood conditions remain unchanged. And vice versa, persons who use their feet continually, or have worn very thin shoes, will find temporary relief in thicker shoes and more support. Both may be followed by return of symptoms if they are long continued; and changes from time to time ought to be made, if physiological needs are to be perfectly met. A constant feature of all cases is the one that artificial aids ought to be kept down to a minimum degree from time to time; and the feet should perform their functions always as nearly normally and unaided as their strength permits. Whether patients with weak feet shall be kept off of them a part of the time, or completely, can be told from experiment and from indications furnished by the past history; and these trials should be made and right amounts quickly estimated. Changes that have to be made in these mechanical elements may vary from no change at all to complete rest in plaster casts; but in every case the mechanical factors should be thought of at least although nothing has to be done.

Vascular elements in development of foot strains are ones most commonly poorly understood, despite the fact they undoubtedly are as important as mechanical features. It is possible, though rarely advisable, to cure pains in the feet from the lesser degrees of foot strains simply by medicinal tonics, iron, cathartics and eliminants without paying attention to local conditions. This medical phase of treatments, however, is lost sight of at present very commonly in search for local anatomical defects; but the important influence of vascular states is convincingly indicated nevertheless by the frequency with which debilitated conditions initiate development of foot symptoms. Debility is a matter orthopedists, as a class, have rather vague ideas about, dealing as they do mainly with tangible mechanical devices and anatomical considerations. Debilitated states are poorly

understood by all, yet there are a few rough quantitative defects in normal physiological processes which are recognizable, and which can be corrected frequently with good results.

It is known that digestive disturbances are starting points for many troubles. Normal digestive functions frequently become temporarily poor through fatigue or worries; and ordinarily harmless products of intestinal bacterial activity become increased temporarily from increased bacterial action upon the food residues left as a result of poor digestive function. Larger quantities of bacterial products than usual are absorbed in consequence, and circulate in abnormal amounts, exerting mild deleterious influences, and show themselves finally in the fluctuations of indican and allied substances in the urine. The blood stream temporarily has slightly changed proportions among its usual constituents, and if these fluctuations are repeated often, or continue long enough, they give rise indirectly or directly to mild anemias, articular pains, etc., etc. Individuals feel below their usual standards, muscle tone is lessened, and weaknesses become accentuated. Feet frequently suffer in this way; and the remedy primarily consists in diminishing amounts of useless substances in circulation by diminishing absorptions from the intestinal tract and by increasing their eliminations. This is accomplished with the aid of stimulating tonics to increase normal digestive, peristaltic and cardiac functions, by cathartics to remove food residues promptly, and by increasing the excretion of urine. Iron in some form is beneficial simultaneously to correct deficiencies that have arisen in the iron content of the blood.

These are extremely well known measures, but their importance in treatment of many types of flat-foot the writer has seen repeatedly overlooked. Many patients have been treated with strappings, plates, shoes, Thomas heels, etc., and have dragged along without being crippled, and yet without recovering their normal strength; and then, when a few weeks' attention has been paid to defects in circulating blood, normal conditions have been restored again promptly. Prescription of drugs cannot be made in haphazard ways, and their effects have to be watched as carefully as those of mechanical appliances in order to rectify the defects in alimentary tract and circulation that are producing the slightly unfavorable conditions. When it is remembered that every person's start in life begins with certain initial vitalities in each organ and in every living cell, as well as in all collectively; that these initial vitalities vary in different persons and that the blood is the common soil in which all tissues grow, then it can be realized that what is brought to, and what is taken away from, living cells by the blood stream constitute the most important influences to which tissues are subjected. If proportions of substances in circulation remain constantly favorable the individual thrives, and may grow strong and robust even from a very poor beginning; and vice versa, unfavorable quantitative proportions of vascular substances soon produce delicacy and debility in persons originally strong, as a barren soil always produces scanty crops. What is true of the person as a whole is true of his organs individually. Some organs are stronger and better developed than others at birth and often keep their lead throughout life; and if vascular conditions are unfavorable for ligaments and muscles, then these show the effects of the unfavorable influences in drooping attitudes, round shoulders, weak backs, flat feet, visceral ptoses, etc., so commonly observed. Knowledge of these changes in the blood from time to time, also the biological needs of living tissues are the matters that should have more universal understanding now when anatomical details of foot structure have been so thoroughly investigated. Some types of flat-foot, however, must be recognized to be almost, or entirely, beyond control when chronic progressive diseases of the gastro-enteric tract, kidneys, or other organs prevent correction of vascular conditions. This is true although harmful mechanical pressure and strains always can be perfectly eliminated and controlled. Patients with flat-foot in the future probably will select their own supports and shoes very frequently without advice, as now; but when they consult physicians they should receive directions that are based upon physiological principles as well as upon pathological changes. Then patients will be made to realize that no one style of shoe, or principle of treatment, is universally applicable, and that their needs necessarily change from time to time, so that a number of entirely different measures are likely to be tried before normal balance between blood, mechanical pressures, and tissue resistances is again restored.

Too much cannot be known about anatomy and pathology, yet it should be remembered that of themselves, they offer only incomplete suggestions as to proper treatments; and equally important physiological and biological needs must be understood and familiarized before functional defects can be perfectly corrected.

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—At the ninth annual meeting of the American Red Cross in Washington, announcement was made of the completion of the $300,000 fund, which was necessary in order to secure the $400,000 appropriated by Congress for the erection in Washington in memory of the women of the Civil War of a building to be used as headquarters for the Red Cross. This assures erection of the memorial at an early date.

Medical Record.

HAIR CAST OF THE STOMACH WITH REPORT OF A CASE.

BY G. A. MOORE, M.D., BROCKTON, MASS.

Of the pathological curiosities found in man, no region has yielded such an abundance as the gastro intestinal tract. The most remarkable of these are the foreign bodies, especially those found in the stomach; an enumeration of which would fill a small volume. These objects vary in size from pins, nails and screws to ketchup bottles and masses of roots and hair weighing several pounds.

With the exception of objects found in the stomachs of professional glass-eaters, knife swallowers, etc., foreign bodies may be divided roughly into two classes: First, hard objects, such as knives, spoons, nails and screws, found almost exclusively in the insane; and Second, those composed of roots, strings, rags and hair, discovered in patients a great proportion of whom are mentally sound.

To this second class of cases and especially to the foreign bodies composed of hair this paper will be limited, including a report of a case.

While these cases are not common, they can hardly be considered of rare occurrence, for after a fairly exhaustive search, the writer has found 53 mentioned in the literature.

The occurrence of bezoars or hair balls in the human stomach might well be used as an argument in favor of evolution, as they are frequently found in animals in the season when the hair is shed. In animals, however, except in certain breeds of Angora cats, serious symptoms are never observed, since the masses are usually much smaller than those found in man, and are firmly felted together, due to the projection of the outer layer of epithelial cells on the hairs. They are frequently expelled in the vomitus or feces covered with a thick coating of food particles and mucus.

In man felted masses are rarely observed, since human hair is much smoother than that of animals. The hairs are loosely woven or matted together with food particles caught in the meshes. It is probably due to the loose arrangement of the hairs; that symptoms of pyloric obstruction are rarely if ever encountered; the food either being filtered through the mass of hair or pushed past it.

Another class of foreign bodies found in sane patients merits consideration. These are the so-called gastroliths or bodies found in the stomach as a result of drinking varnish, shellac, etc., to satisfy a craving for alcoholic drink. The occurrence of gastroliths is very rare indeed as compared with hair balls. Early operation is, however, more frequently necessitated, owing to ulcerations and symptoms of obstruction.

Case. A. B., 28 years old. Shoe factory worker. Referred to me by Dr. W. H. Pulsifer, Whitman, Mass., March 13, 1912.

F. H. Unimportant.

P. H. Had all children's diseases. Never had diphtheria, pneumonia or typhoid. Always well up to six years ago when she states she contracted syphilis. Bore two healthy children prior to 1906. The first one died of marasmus; the second, of ileocolitis. (Both died at Boston Children's Hospital.)

In 1906 a third child was born which was said to be syphilitic. Since 1906 she has occasionally noticed a rash over her body and sore spots in her mouth, nose and scalp. Has had many self-induced abortions, the last one occurring in December, 1911. Had very severe abdominal pain and high fever following last abortion, since which time she has had considerable pain and burning on micturition and frequent attacks of pain in both lower quadrants of abdomen. Catamenia: Began at 14; always regular and copious. Constant leucorrhea since 1906. Appetite always good up to beginning of present illness. No digestive disorders.

P. I. About Jan. 1, 1912, began to complain of pain in right side of abdomen on level of umbilicus, which frequently radiated over entire right side of abdomen and chest. Pain often so severe that patient was unable to breathe. The pain was never localized in the epigastrium. Soon after onset of the present illness, patient noticed a mass in abdomen just to right of the umbilicus, about the size of an orange, which has gradually increased in size. She has had frequent attacks of vomiting, lasting a few hours, at times before eating, at others, after. Vomitus frequently composed of "white slimy stuff," occasionally dark and frothy. Bowels constipated, no noticeable change of late. Usual weight 115, present weight 96.

P. E. A pale, sickly, emaciated woman, apparently suffering severe abdominal pain. Skin dry and parched, scalp clean, no ulcerations. A few small pigmented scars over left thigh and both tibiae. Pea-sized glands in left cervical region and both groins. Teeth: Upper false, lower in fair condition. Nose normal. No ulcerations. Eyes: Pupils equal, regular and react normally. Tongue clean, mucous membrane of mouth and throat pale but otherwise normal. Nothing abnormal found in lungs. Heart normal in size, sounds normal, except for slight systolic murmur at apex not transmitted. Abdomen: Moderately distended, but lax and tympanitic throughout. Moderate prominence in left hypochondrium. Moderate diastasis of recti. Considerable tenderness without spasm or rigidity over entire right side of abdomen and left hypochondrium. On palpation a very firm, rounded, movable and extremely tender mass was found extending from one and one-half inches to the right of the median line just below the level of the umbilicus to the left beneath the costal margin. The upper border of the mass was two inches below the xyphoid cartilage, the lower border one and one-half inches below the umbilicus, roughly three and one-half inches vertically by six inches transversely. On standing the entire mass sank lower down in the abdomen and extended further to the left. (See Fig. 1.)

In the dorsal position the tumor could be moved to right or left so that the fingers could be inserted between it and the costal margins. Liver dullness normal. No hilum could be felt in tumor. Splenic dullness normal. Kidneys not palpable. On careful palpation over the tumor a sense of crackling or deep crepitation could be made out. Pulsations of

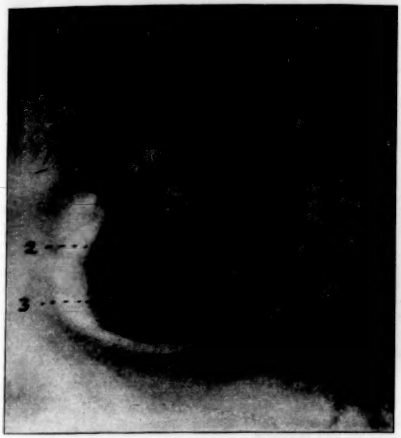


FIG. 1.

Patient standing.

1. Ensiform.
2. Umbilicus.
3. Black line indicating right and lower border of tumor.

aorta apparently transmitted through the mass, no expansile pulsations or bruit.

Vaginal Examination. No cicatrices or ulcerations observed about vulva or vaginal walls, moderate leucorrhea, cervix bilaterally lacerated, uterus normal in size, freely movable, retroflexed into hollow of sacrum. Knee jerks normal.

A provisional diagnosis of tumor of syphilitic origin was made and the patient put on iodides, which were pushed to the limit of tolerance. Under this treatment there was an apparent increase in the size of the tumor and the patient lost ground. Operation, which was at first refused, was finally consented to and the patient entered the Brockton Hospital July 7, 1912.

Physical Examination on entrance was practically the same as four months previously, except that the tumor was larger, extended further to the right and was more freely movable. Just to the right and above the umbilicus was a small area of tenderness. Over no other part of the mass was any tenderness elicited. The stomach was inflated and the lower border found to be two inches below the umbilicus while the upper border was in normal position.

Patient was put on house diet and had no gastric symptoms except a slight attack of nausea and vomiting after eating oranges. This she stated was a common occurrence.

Temperature, pulse and respirations normal. Urine normal.

Blood. Hemoglobin 70% Tallquist, white count 12,000, red count 5,300,000. Smear: Moderate achromia, otherwise normal. Differential count: Polynuclears 63%, lymphocytes 35%, transitionals 2%.

Wassermann and Noguchi reactions strongly positive.

The diagnoses considered were: (1) Mesenteric tumor of specific, malignant or tubercular origin. (2) Omental tumor. (3) Spleen. (4) Kidney. (5) Fecal impaction. Of the provisional diagnoses a malignant tumor of the mesentery seemed the most probable in view of the fact that it had increased in size under forced antisyphilitic treatment. Gumma of the mesenteric glands was the next choice. Omental tumor was thought to be improbable as there was tympany over the entire tumor. Spleen was ruled out by absence of a hilum in the tumor and by the presence of normal splenic dulness.

A kidney would hardly be as freely movable nor would there be tympany over the entire mass. The firm consistency, form and absence of pitting on pressure, ruled out fecal impaction.

The patient's general condition had not improved in the four months she had been under observation, the tumor had increased in size and she still complained of occasional pains in the right hypochondrium. Exploration was advised in the hope of finding an operable condition.

Operation July 19, 1912. Dorsal position, five-inch median incision from xyphoid to below umbilicus. Peritoneum opened revealing normal omentum. Mesentery and transverse colon normal. Nothing abnormal in gall-gladder and ducts. Spleen normal. Stomach: upper border in normal position, lower border about two inches below umbilicus, apparently completely filled by a large, smooth, sausage-shaped mass roughly nodular near the pylorus. Stomach was partially delivered from the abdomen and carefully walled off. Silk stay sutures were then placed in the anterior wall and a three and one-half inch incision made between the stays from the lesser to the greater curvature of the stomach about three inches from the pylorus. Through this opening the tumor, which proved to be a mass of human hair, was delivered. The upper pole of the mass extended up into the esophagus about two inches and the lower pole rested against the pylorus. (See Fig. 2.)

The stomach was carefully sponged out. No ulcerations were found, mucosa was moderately injected. Stomach incision was closed with three rows of Lembert sutures, No. 1 chromic-gut through mucosa and two rows of silk in muscular and serous coats. Abdominal wound was closed in layers with chromic and silk-worm gut.

Convalescence was uneventful and the patient was discharged well Aug. 7, 1912. She persistenly denied ever having eaten any hair. Patient was last seen Sept. 8, 1913. Health has been excellent since operation, except of late she has "occasional attacks of dyspepsia."

The mass of hair shown in Fig. 2 was found to be composed entirely of long, curly black hairs, loosely woven together, between the meshes of which were many food particles. It weighed before being washed and dried thirty-one ounces. For dimensions see Fig. 2.

The odor from the mass was not unlike that of a very ripe Limburger cheese. The patient's hair was light brown and very thin; but according to Bell[1] the prolonged action of the gastric juice on human hair deepens the shade.

In reviewing the case after operation, the chief error in diagnosis seemed to be in discrediting the patient's gastric history on account



FIG. 2.

Tumor suspended approximately in position it occupied in stomach. Scale showing dimensions. P: Pole resting against pylorus. C: Pole extending up into esophagus.

of her freedom from symptoms while under observation in the hospital. Had a stomach tube been passed, it would doubtless have been obstructed by the mass of hair extending up into the oesophagus. Washing out the stomach, had it been possible, would probably have brought back a few hairs in the wash water as occurred in Hüttenbach's[2] case. X-ray after a bismuth meal would have shown the mass in the stomach. After entrance to the hospital the patient was able to eat anything and was practically free from any gastric disturbance, which led the writer to believe that had there been any symptoms previously, they were of minor importance.

A careful review of the literature on the subject of hair balls was made by Butterworth[3] in 1909 with a brief resumé of the forty-two cases which he found reported. To these cases I am able to add eleven[4] more from the literature, which with my own makes the present number reported fifty-four.

The important conclusions to be drawn from a study of these cases are that:

(1) This is a condition rarely found in men. Forty-eight or over eighty-nine per cent. of the cases were girls or young women, the average age of whom was nineteen and one-half years. This, however, is the age at operation or death. Where the duration of the habit has been carefully inquired into, it has been found to extend over periods varying from two to twenty-two years, which would tend to verify the statement made by many authors that the habit of hair eating is most frequently formed in childhood when the hair is worn loose or in long braids.

(2) Confession of the habit before or after operation, was obtained in less than half of the cases. Therefore, a denial of having eaten hair as in my case is of very little importance.

(3) The prevalent idea that foreign bodies in the gastro-intestinal canal are found only in the insane is erroneous. But six or eleven per cent. of the entire number were mentally deficient or insane.

(4) Nausea or vomiting, though mentioned in but twenty-eight of the cases, probably occurs more frequently, as gastric symptoms are less pronounced, when the patients are kept at rest. Hematemesis, which is considered an important symptom by English writers, is of rare occurrence. In only three, or five per cent., of the reported cases was it observed. Doubtless, this is due to the fact that the masses of hair caused ulceration in but seven cases.

(5) In thirty-nine of the cases a tumor was reported to have been found which was situated in the epigastrium in eighteen patients, in other regions of the abdomen in eleven cases, and the location is not mentioned in ten. These masses are sausage-shaped, very firm, smooth and freely movable.

(6) Of the diagnoses suggested, the spleen seems to be the most frequent offender, being reported in eight cases, malignant tumor in five cases, floating kidney in four cases. Omental tumor, tubercular infiltration, twin pregnancy, hydatid, gumma and cyst of the pancreas are the rarer diagnoses.

(7) The masses of hair vary in size with the duration of the habit and the amount that has been passed in the stool. The largest reported by Mermet D'Hautville[5] weighed six pounds, the smallest two and one-quarter ounces, Thorburn's reported by Pell-Ilderton[6].

Prognosis apparently is uninfluenced by the size of the tumor, the mortality being as high in the cases where large masses are found as in those where only a few ounces had been ingested.

(8) Regarding treatment of these cases, little need be said. Statistics, especially of the earlier cases, prove conclusively the futility of expect-

ant methods. Of the twenty-two cases treated without operation, nineteen died, a mortality of eighty-six per cent. Three vomited masses of hair or passed hair in the stools and recovered.

Twenty-eight patients were operated upon with two deaths, a mortality of seven per cent. In the two fatal cases, the masses of hair had passed into the small intestine and caused obstruction. In four of the cases treatment and result are not mentioned.

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THE WORKMEN'S COMPENSATION LAW AND THE PHYSICIAN.*

BY HON. JAMES B. CARROLL,

Chairman, Massachusetts Industrial Accident Board.

As the Workmen's Compensation law has worked out, it is quite evident that the provision which provides for "reasonable medical and hospital bills" for two weeks is unsatisfactory from many points of view. This waiting period of two weeks was originally intended to stop malingering, and fraudulent claims for disability. But it has been shown to the Industrial Accident Board in many ways that when there is a real disability, it is a great hardship for the injured employee to have to wait two weeks before his compensation begins, and this has already brought great suffering to the families of many injured workmen.

In addition to this, it is also manifest that in many cases the two weeks medical attention, which is all that can be legally claimed, is not sufficient in all cases. Only injuries of minor character can be cured in two weeks, and when men are seriously injured and require the attention of a nurse and a doctor more than two weeks, the law is entirely inadequate to fit such cases. In many cases it is quite conceivable that the injured workman might receive compensation at the maximum of $10.00 a week, and still not receive enough to pay his doctor's bill, and that this law, which was intended to relieve the families of workmen injured in industry, would operate to bear down very hard upon them.

But in all these cases, if the medical profession and the public generally will realize the importance of the question, we hope to be able to present the defects of the law to the Legislature in such a manner as to bring relief.

The original medical problems arising under the Act have been at least partially solved by the selection of a committee of seven representative physicians, who from a patriotic desire to benefit the industrial classes primarily benefited by the Act, and to place the medical profession in a proper attitude towards it, have untiringly and unselfishly spent a large amount of time in working out this matter.

That medical matters relating to the Act, under consideration by the Medical Advisory Committee, have been finally settled, cannot, however, be claimed. The desire for dividends, at whatever cost, on the part of certain insurance corporations, and the fact that there are undoubtedly some physicians who are greedy to take advantage of the Act, in order to get fees which they otherwise could not hope to obtain, will probably continue to make trouble. But, happily, the road has been cleared towards an understanding, which we hope will prove satisfactory all around.

When the Act was passed there was no doubt that a majority of the physicians of the State felt the Act was an unwarranted infringement of their rights, and at the meeting of the physicians at the State House, with the Industrial Accident Board, the hostility on the part of the majority of the physicians was only thinly veiled, only to end up with a better understanding all around, and a more charitable appreciation by the physicians that the Industrial Accident Board understood the rights and obligations of the profession.

At this meeting, and in its subsequent actions, the Industrial Accident Board has tried to show that it considers only the best interests of the physicians, and that in the long run, any solution of this matter, which does not satisfy the honest physician who is ready to deal squarely with this subject, cannot be a satisfactory one.

Contract Physicians. When it can be shown, as in one city, that the work formerly done by four or more physicians and paid for at the rate of $5,000 a year, is turned over to one physician, at the rate of $1,200 a year, the contract system, as a whole, cannot justly be defended. Even if it can be shown that the contract system of treating injured employees may work out satisfactorily in rare cases, as a rule it is bound to create trouble. The injured workmen will not, in the majority of cases, receive as satisfactory or skilful treatment, and even the principal object sought by the insurance company favoring the contract system, to wit: The reduction of the cost of medical services, will be a failure, because in the end things of this kind which are cheap, are likely to prove more costly.

Benefits. The medical profession was benefited by the Workmen's Compensation Act in many ways. From the standpoint of money, it

* Read before the Worcester District Medical Society, Sept. 10, 1913.

can be shown that the doctors will get more for services to injured people than was paid out for all kinds of claims, under the former Employers' Liability Act.

But the money in this matter is the least important consideration. Workmen's compensation is only the beginning of a chain of laws to insure workmen against accidents, disease, and ultimately, perhaps old age, and even unemployment.

It is easy to conceive with the progress of these laws, unless properly safeguarded, they may result in the practical enslavement of the medical profession to a bureaucracy created by legislative act. The recent history of certain European countries will bear this out. The Industrial Accident Board has foreseen the possibility in such laws, and this is the reason why such extreme care has been taken that the initial steps in planning procedure shall be along lines approved by the profession generally.

In criticizing the inevitable mistakes of the Board, or of the Medical Advisory Committee of seven, chosen by the medical men themselves, doctors should not forget that the Board and this Committee have always kept in view the ideal of the future of the medical profession who, when things work out as planned, will be left free from the bureaucratic trammels and retain all the rights of which, in the progress of social laws in European countries, in large measure they have already been deprived.

Fees. It seems to the Industrial Accident Board, and to the medical men who have been assisting them in trying to solve the medical problems of this work, that it will be absolutely necessary shortly to agree that the medical fee table shall be put on an industrial basis, and once the principle that industrial accidents shall be classed on an industrial basis, different from the fees in private practice, is established, the whole question of fees will gradually be settled.

Hospitals. In regard to patients who are treated in hospitals, the present law is full of contradictions, and there are many questions to be decided. The injured workman taken to his home is entitled, by virtue of the agreement which the Board has worked out with the insurance companies, to send for his own doctor, but is not entitled to any reimbursement for his board or care. If he goes to a hospital, in ordinary cases the doctor is not entitled to any payment for his services, but board and care are paid for by the insurance company. Many of the hospitals in Massachusetts are charging the insurance companies for the board and care of injured workmen, an amount less than it actually costs them for food.

The Industrial Accident Board is now arranging a conference with hospital superintendents, at which conference charges for hospital services to injured workmen shall be determined, and also the rights of the staff physicians to charge fees to injured employees.

In addition to this, an attempt will be made to define the proper procedure in regard to making employees who are injured, private patients. And it is to be hoped that this conference will result in some kind of an agreement as to the principles of justice which are governing these matters.

THE PASSING OF PARANOIA.*

BY JOHN B. MACDONALD, M.D., HATHORNE, MASS.,

Assistant Superintendent, Danvers State Hospital.

IN the Kraepelin sense paranoia may be regarded not as a disease process but a variety of psychical mal-development showing itself in a morbidly perverted reaction to the problems and affairs of life. Or, to use the words of Meyer, "it is the fulfilment of a fate of peculiar make-up." The disease-picture, if we may apply the term to a condition which is but the expression of an anomaly dependent upon evolutional forces, limits the application of the name true paranoia to a type of individuals perhaps more commonly met outside than inside the walls of institutions. Adhering strictly to Kraepelin's conception we would expect them, for the most part, to be able to adjust themselves after a fashion to their environment, without serious conflict, though often perilously near it.

Briefly stated, as I understand them, the characteristics of true paranoia are delusions representing an unfolding and elaboration of thought processes normal to the make-up of the individual, distinguished by a perverted but clear logic, contact with reality, and originating from actual occurrences; a chronic, incurable course, unyielding faith in, though not necessarily fixity of, the delusions; absence of intellectual impairment and perfect retention of the integrity of the personality.

Upon this hypothesis the task of classifying the true paranoiacs among the insane in institutions is beset with extreme difficulties and perplexities. To determine with any assurance of correctness a diagnosis of this kind in the early stages of a psychosis, one needs not only a clear insight into the nature of this abnormality of mental make-up, a knowledge of the changed opinions on the problem, the variety and number of which indicate they are but stages on the road to a more complete understanding of the subject, but also hindsight and foresight beyond the ordinary endowment of mortals. In determining the existence and value of a peculiar trend arising from make-up as a factor, and in prejudging and fortelling the absence of intellectual impairment and the retention of the integrity of the personality in advance of the prolonged and chronic paranoiac career, the prac-

* Read at a meeting of the New England Society of Psychiatry September, 1913. Danvers State Hospital Contributions, No. 45.

tice of psychiatry becomes a decidedly more intricate and delicate business than the toughest sort of theorizing.

The wealth of material available for study in the case records of the Danvers State Hospital, and the method of case-indexing carried on there for years, offer a fine opportunity for checking up end-results in just such cases as these in the diagnosis of which terminal conditions play so important a part. For the purposes of this meeting we have made a somewhat hurried study of cases diagnosed paranoia and entered as such upon our index-cards. The series undergoing this review comprises all cases so classified since the year 1884, a period sufficiently long in most cases for the detection of deterioration, or developmental symptoms not in accord with Kraepelin's definition. The result of this review by present-day standards of classification is anything but encouraging to one ambitious of attaining to that degree of skill in psychiatric diagnostics involving the power of prophecy. From another point of view it is interesting when considered in relation to the different conceptions of paranoia prevailing at different periods, the incidence of cases for a certain series of years varying according to the trend of psychiatric thought of the time, and marking off quite distinctly the stages of development of our present-day notion of paranoia.

In the twenty-nine years under review the number of admissions primarily classified as cases of paranoia was 51. In the first 15 years of the period we find only three cases, admitted one, each, in the years 1884, 1888, and 1899. The following four years, 1900 to 1903 inclusive, are remarkable by reason of the great increase of cases under this classification, the number comprising 37 or 72.5% of the total for the twenty-nine years. This increased incidence corresponds fairly exactly with the period when the Kraft-Ebbing conception of paranoia was orthodox doctrine. Hallucinations formed an important part in the disease-picture of this time, and mental deterioration, while not considered an integral part of the pathological process was not at all uncommon, the prognosis in this respect being uncertain, depending upon what was considered the accidental development of intercurrent diseases, mania, melancholia, etc., to which it would seem this class of cases was regarded as particularly susceptible.

The influence of the Kraepelin school is seen in the markedly diminished incidence since 1904, —a total of 11 cases for the years 1904 to 1909 inclusive, and the latter year marks the last appearance on our records of a case under this classification.

Of the total 51 cases originally placed in this group, the later histories of 35 show the development of symptoms, or a termination, inconsistent with the primary diagnosis. Of the remaining 16 cases five were under observation for periods not exceeding one year, and four not exceeding two years. In these cases the lack of an adequate after-history following their removal from the hospital renders it expedient to consider them apart as cases where clinical judgment must be suspended for lack of evidence as to their final condition.

We have thus a clear margin of error of 68.6% in the original classification, and ruling out cases not sufficiently long under observation the number of "possibles" determined is reduced to 7 or 13.7% of the total originally classified as cases of paranoia.

In the re-classification of the 35 cases showing the development of symptoms or a termination inconsistent with the paranoia concept, evidence of deterioration was found in 30 cases, or 85% of the number. Of these, probable dementia praecoxes and paranoid conditions comprised the majority. Five cases of the group recovered, one being an acute paranoic condition, two manic-depressive and two alcoholics.

Hallucinations formed a part of the disease-picture in all but three cases of this group. Two of these three presented conditions of beginning apathy and deterioration at admission and the previous history as respecting hallucinosis was inconclusive. In only one of the whole group could it be said with any degree of certainty that hallucinations were non-existant at any stage of the psychosis.

On the other hand in the total of seven "possible" cases hallucinations were definitely determined in only one case. Even here the question of the existence of hallucinations, and the diagnosis, may be open to doubt, the patient being a person of criminalistic tendencies who excused his acts in this connection on the ground that he was driven to them by the promptings of a devil which resided within him and urged him on by audible commands when the opportunity of gain by breaking, entering and stealing was favorable. Strong ideas of reference and illusional misinterpretations gave a pseudo-hallucinatory coloring to the picture in another of these cases.

Summing up our findings by this review of case histories, attention is directed to the relationship between the incidence of cases and the stages of development of our present-day conception of paranoia; the large margin of errors in the classification of early years when the question of prognosis and the study of life histories formed an insignificant or unimportant factor in diagnosis, the rapid decrease in number of cases on record coincident with the acceptance of Kraepelin's idea of absence of intellectual impairment as an essential condition of the picture down to the more recent years when the psychiatric trend seems to have caused "the passing of true paranoia" from the list of the common psychoses. Of equal interest are the findings in relation to hallucinosis, the prevalence of this symptom at some stage of the psychoses in those cases with a mistaken classification of paranoia, and its practical absence in those where the original diagnosis was sustained.

Clinical Department.

REPORT OF A CASE OF BRACHIAL NEURITIS DUE TO PERIOSTITIS OF RIB.

BY R. W. FRENCH, M.D., FALL RIVER, MASS.

THE following case seems interesting because of its rarity and the fact that the condition escaped unrecognized for many years.

The patient, a woman of forty, single, a native of Canada, presented herself at the Highland Hospital, Fall River, for treatment. Her family history and past history were both good. Her present trouble began fifteen years ago and has consisted solely of pain in the third finger of the left hand. It was of very gradual onset, soon became persistent and steadily increased in severity. There was no history of injury nor was there any reason to suspect that her occupation, a dressmaker, contributed to the cause.

For five years she had not worn a glove on the affected hand, inasmuch as contact of the finger tip with any object caused acute pain, as did also gently tapping the end of the finger. Motion of the finger, however, caused no added discomfort.

For the past three years it had been severe enough to keep her awake unless she took aspirin. At first five grains were sufficient, but at the time that she entered the hospital, it required fifteen grains to control the pain so that she could obtain sleep. She was never awakened by the pain.

Various local treatments and internal medications had been tried, and section of the digital branches of the median nerve along the sides of the finger had been proposed.

Local examination was negative, except for acute pain which was caused by tapping the finger tip. In the routine physical examination, however, a small, hard, fixed mass was found just above the left clavicle. It was not tender, but pressure on it increased markedly the pain in the finger. Physical examination was otherwise not remarkable. X-ray examination excluded the possibility of a cervical rib and showed a faint outline of the mass, apparently connected to the superior surface of the first rib.

At operation an incision was made over the mass and dissection carried down to the brachial plexus, one trunk of which was found resting upon an indurated nodule, 2 c.m. in diameter, involving the first rib. The nerve trunk was retracted and the nodule together with a portion of the rib, 3.5 c.m. long, was resected. Subsequent examination of this specimen showed a periostitis. Her convalescence was rapid and uneventful.

She reports now, a year following the operation, that she has had no recurrence of the pain in her finger, and feels perfectly well.

—The secretary of the Michigan State Board of Health has informed the health officer of Benton Harbor that the state has no provision for the care of lepers and cannot, therefore, assume responsibility for Jacob Goldstein. There is no state institution to which Goldstein can be admitted.

Jour. Am. Med. Asso.

Medical Progress.

PROGRESS IN GYNECOLOGY.

BY STEPHEN RUSHMORE, M.D., BOSTON.

FASCIA TRANSPLANTATION.

FREE fascia transplantation in plastic operations is a procedure which has proved of value in a number of applications. Ach[1] has employed it successfully in fixation of the rectum and of the kidney.

In the treatment of floating kidney the steps of the operation are as follows: A vertical incision is made over the edge of the sacro-lumbalis eight to ten centimeters long, exposing the kidney. The necessary displacement is easy. A longitudinal incision is made on the posterior surface of the kidney through the capsula fibrosa, followed by a similar incision on the anterior surface. The capsule is then freed from one incision to the other over the convexity of the kidney by blunt dissection. A strip of fascia from the fascia lata, six centimeters wide and twenty centimeters long, is then drawn under the fibrous capsule from one incision to the other, and the two incisions are closed, perforating the strip of fascia with the closing sutures. The kidney is then restored to its place and the two projecting flaps of fascia are attached respectively to the deep and superficial layers of the lumbo-dorsal fascia. Ach has employed this method in ten cases; all gave anatomical cures, nine symptomatic. The tenth case was a hysterical individaul, who was improved, however.

Ach's experience with rectopexy by this method is limited to one case, but the result was satisfactory after nine months, rather a short time to claim a cure. The method is ingenious and worthy of note, for while the principles of plastic operations may be few and fixed, the practice must be adapted to the individual case, as perhaps in no other department of surgery.

A transverse abdominal incision was made, with considerable elevation of the pelvis. Strong traction on the pelvic colon exposed the cul-de-sac. A wide incision was made around the rectum, freeing that organ down close to the sphincter, especially anteriorly. A strip of fascia lata was then taken, eight centimeters wide and twenty-five centimeters long. Of this one end was split to make two flaps which were attached low in the pelvis. One of these flaps was passed almost circularly around the rectum, to which it was attached by numerous sutures. The other flap was passed low down between the bowel and the vagina and sutured by its free border to each organ. In order to avoid adhesions, the upper end was passed upward, external to the peritoneum, which was dissected free, over the right ureter and through the right broad ligament. Drawing it up to lift the

vagina and rectum as far as possible, it was sutured laterally to Cooper's ligament, and its free end was sutured to the muscle of the abdominal wall. The result immediately and after nine months was good, in spite of the condition of the pelvic floor, which had not been operated on otherwise.

Although free fascia transplantation to close a vesico-vaginal fistula was first suggested by Koenig, there appeared no report of its use until the case of Schmid was published.[2] Schmid employed it in the third operation to close a vesico-vaginal fistula, which occurred after a radical operation for carcinoma of the cervix. The two persistent openings were small, close together, and about in the median line, with considerable scar tissue on both sides. After the usual denudation, the bladder mucous membrane was closed transversely. A rectangular piece of fascia lata, three centimeters by two, was then sutured between the bladder and the vaginal mucous membrane, attaching it by four cat-gut sutures under as much tension as possible. The vaginal mucous membrane was then closed as well as possible, making lateral incisions to loosen the tissues. A retention catheter was left in the bladder until the eleventh day. The wounds healed, giving no trouble with bladder or thigh. The method suggests itself as applicable to those cases of small fistula in which the first operation fails, and as the operation of choice, from the first, in all large fistulas.

ESSENTIAL UTERINE BLEEDING.

In spite of numerous studies and reports of many cases, there is as yet no unanimity of opinion among gynecologists as to the so-called "essential uterine bleedings."[3] "Sclerotic changes" in the blood vessels are often referred to as a cause, but these are due to a physiological process and are not to be confounded with true arteriosclerosis. The old view set forth by Ruge and Veit, and accepted for years, was that endometritis is an important cause of uterine bleeding, for the cases were cured by curettage and microscopical examination showed a hyperplastic condition of the endometrium. But the large number of cases which were not relieved by curettage, or in which no hyperplasia was found, or in which no bleeding occurred, even though hyperplasia of the endometrium was present, suggested the probability of the views expressed by Hitschmann and Adler and by others. Recently renewed interest has stimulated a large number of studies of the subject, the results of which have modified the prevailing opinion, so that now the view is that in the great majority of menorrhagias and metrorrhagias endometritis is not an etiological factor.

The hypothesis of a local hemophilia or of a disturbance of relationship between the glands of internal secretion, has no clinical nor anatomical basis. Since normal menstruation is dependent on the presence of the ovary, there arose naturally the theory that disturbances of menstruation were due to disturbances of ovarian function. But no generally accepted basis for this connection has been found. If a series of cases of ovarian tumors is studied and compared with normal cases with reference to the question of bleeding, there is found no anatomical basis for the correlation of bleeding to ovarian changes. In general, as is well known, the hemorrhages occur most frequently about the time of the menopause, when the function of the ovaries is rapidly diminishing. If hypersecretion or hyperfunction of the ovary were the cause of uterine bleedings it is extremely improbable that it would occur about the menopause rather than at the time of greatest sexual activity.

Hirsch claims that while the chief factor in uterine bleeding is defective contraction of the uterine muscle, another important factor is involved. This is a hyperemia which affects not only the uterus but the whole pelvic area. The condition of the uterine musculature which renders its strength inadequate for the blood content of the uterus, that is, insufficient to withstand the blood pressure and drive the blood on through the pelvic circulation to the heart, may be spoken of as uterine insufficiency.

Against this theory of uterine insufficiency is the fact that typical changes in the endometrium or myometrium are not found. But such typical findings are not necessary for proof, for the weakness is not absolute, but relative, there is simply a disproportion. In the presence of a typical anatomical picture there would be no bleeding if no hyperemia occurred. Even in almost complete degeneration of the uterus into connective tissue, as in the senile state, hemorrhages do not necessarily occur. Only slight bleedings occur if hyperemia is absent, as in anemia, chlorosis, general adiposity, chronic intoxication and all wasting diseases.

Hirsch describes normal menstruation as follows: There is hyperemia of the uterus and other pelvic organs due to an ovarian hormone, leading to diapedesis and bleeding. Before it becomes considerable, uterine contractions set in and the bleeding often diminishes or even ceases for hours, the uterine contractions being perceptible to the patient as "drawings" in the abdominal or sacral region. Insufficiency of uterine contraction or of the uterine muscle occurs if there is a maladjustment between the blood content of the uterus and the strength of the uterine musculature. This means simply that hemorrhages are due to functional disturbances of the uterine muscle based in the majority of cases on anatomical changes in the uterine wall. Such changes, however, may be entirely lacking. Uterine insufficiency is thus exactly analogous to uterine atony found in the so-called chronic metritis in which the hemorrhage is due to functional disturbances and not to anatomical impairment. In the case of bleeding from the subinvoluted uterus, we find very well developed musculature, but it is unable to control the

marked overfilling of the puerperal uterus with blood.

In the study of the hemorrhages in virgins, anatomical investigations are not possible, as the patients do not die, or if death does occur, hemophilia cannot be excluded. But even from the hypoplastic uterus hemorrhage does not arise if the general condition of the body is so poor that the usual stimulus at menstruation is insufficient to cause hyperemia. If, however, hyperemia occurs and the uterine muscle is too weak to resist the pressure of blood by contracting, hemorrhage takes place.

Schickele's view that changes in the metabolism of the ovary affect the coagulability of the blood in the uterus, Hirsch does not accept. Therapeutic tests indicate that no such hypothesis is needed, for the usual means of checking hemorrhage are such that in no way can they affect the ovarian metabolism. These measures are in fact only variations in the means of stimulation of uterine contractions.

Among drugs ergot is the most important in producing contractions, and it should be injected directly into the uterine muscle. The effect is astonishing and not exactly comparable to subcutaneous or oral administration. Often one injection is sufficient, the contraction lasting for several hours (2-3-6-7). Occasionally the injection has to be repeated on several days.

The treatment is indicated in nearly all cases of bleeding from uterine insufficiency, and in the past three years Hirsch has employed it in about two hundred cases. There are certain contraindications, as in the case of young girls in whom local treatment is not advisable. In most myomata there is danger of necrosis and infection, but small, interstitial myomata present no contraindication. In all acute inflammatory conditions of the uterus and of the appendages ergot is to be avoided, and especially in malignant disease and in extra-uterine pregnancy. In postpartum atony with hemorrhage the injection into the tissue of the cervix is far safer than packing the uterus or applying the Momberg belt.

The technic is as follows: The portio is exposed and disinfected. It is then grasped with a hook or bullet forceps and an injection is made with a sterile syringe deeply into the muscle of the portio, introducing the needle parallel with the surface of that organ, and using one-fourth, one-half or one gram of ergot preparation. If the injection is made as directed, large uterine vessels are avoided, and thus faintness, nausea and vomiting, which occur if injection into vessels takes place. Following the injection the patient should lie quiet for a while.

CARE OF THE WOUNDS IN THE RADICAL OPERATION FOR CANCER OF THE CERVIX.

The general line of procedure in the radical operation for cancer of the cervix would seem to be for the present fairly well established. The results, however, are not satisfactory for the mortality is high in spite of the marked improvement which has been evident in the more recent reports as familiarity with the operation has increased. A large proportion of the deaths have been due to infection, arising in the pelvic or abdominal wounds and causing fatal peritonitis. Bumm[4] presents the method used in his clinic to obviate this danger. It is worthy of careful consideration on account of its evidently wise provisions and also because of the reduced mortality, which in a series of one hundred cases reached only six per cent. With the exception of the care of the wounds the procedure is the same as that previously employed, and the operability was practically unchanged (65%).

This gratifying result, which Bumm says a few years ago he would have regarded as impossible of attainment for the radical operation, he attributes chiefly to the treatment of the pelvic wound, namely, the complete rejection of the use of drains and the complete closing in of the peritoneal cavity. Infection is sometimes unavoidable, but, by the complete closure of the peritoneum the danger of infecting its cavity is markedly reduced. The objections to drain are well known, the chief one being that they do not drain. Gauze as a pack to check oozing which there is not time to check by sutures, is useful but dangerous.

The important points in Bumm's technic may be noted briefly. Operation on febrile or subfebrile patients is avoided, if possible, but not refused, as the danger of post-operative complication is greatly increased if infection is already present. The carcinoma is curetted and cut away and thoroughly cauterized with the thermo-cautery, which latter process will sometimes considerably reduce the size of the mass, through contraction due to drying out by the heat. The vulva and vagina are disinfected with an alcohol-sublimate solution and the vagina is treated with a 10% solution of silver nitrate until the mucous membrane is of a gray-white color. Finally a gauze tampon wet with the silver nitrate solution is left in the vagina until just before it is cut across from above.

During the abdominal operation protection against infection is careful. The wound surfaces of the abdominal wall are covered with gauze tacked in place by sutures. The high Trendelenburg position is employed, with large gauze compresses to wall off the general cavity, which compresses are not changed until they are removed at the end of the operation. The instruments are frequently boiled, the gloves washed in running water, and finally the escape of carcinomatous material on cutting into the vagina, is prevented by a special clamp.

The thorough vaginal disinfection has perhaps shown its value in eleven cases, in which the carcinoma thinned by curette and cautery was torn into or through, during the abdominal operation, with apparently no bad results. Formerly this accident was regarded as of ominous import.

Of importance equal to the disinfection is the complete hemostasis, with needle and suture, and avoidance of injury of neighboring organs. As a rule the areolar and adipose tissue from the bifurcation of the iliac artery almost to Poupart's ligament and down to the stump of the uterine artery is removed with the glands. Suturing of the iliac artery or vein, if injured, is preferred to ligation, and has been entirely adequate in Bumm's few cases of this accident. The ureter is less frequently injured than formerly and Bumm prefers ligation if it should for any reason be cut across too high for implantation into the bladder.

The treatment of the pelvic wound is, after complete hemostasis, to suture the peritoneum and of bladder and rectum to the vagina. This closes in two large raw areas. Then the raw areas laterally are closed in by running sutures, or, if there is tension by interrupted sutures. Care should be taken to see that no dead spaces are left. There is then run a catgut suture from one infundibulo-pelvic ligament to the other, low down in the pelvis, approximating the peritoneum of the anterior and posterior walls just above the first line of suture. Thus the general cavity is closed off from the vaginal vault.

Bumm mentions numerous other minor but valuable points in the technic, for a description of which the original article must be consulted.

SARCOMA AND THE X-RAY TREATMENT OF MYOMATA.

When the conservative treatment of myomata was introduced, the question of operation on account of fear of sarcoma was raised for the first time. It has of late again come into prominence chiefly through the opponents of the x-ray treatment who have pictured the situation in dark colors. They say that every patient with sarcoma is lost without operation and nearly every patient operated on is saved. But before these dicta can be accepted and before the matter can be decided, several questions have to be answered, according to Miller.[5]

1. Are sarcomata as frequent among myomata as the opponents of the x-ray treatment claim?
2. Are sarcomata so difficult to diagnose?
3. Are practically all sarcoma patients saved by operation?
4. Is it not possible that sarcomata may be healed by x-ray or at least controlled and restrained?

To these questions just such answers as we would wish are not at hand, because the number of cases operated on far exceeds the number of cases treated with the x-ray, and the time of observation for the latter group of cases is too short. But a study of the literature will throw light on some of the points under discussion.

The percentage of frequency of sarcoma in cases of myoma is about two, judging from statistics based on nearly eighteen thousand myoma cases. The results of radical operation in myoma cases show a collective mortality of between four and five per cent., while the results of operation in sarcoma of the uterus show at best not more than 25% of cures.

In regard to diagnosis there is little to be made out in the early stage of the disease, for then differential diagnosis of malignancy is practically impossible. So that on this point the literature may be studied to advantage to see from the histories what cases would have been treated by x-ray and thus the diagnosis have been overlooked. From the cases subjected to this test, there were first excluded all frank cases of sarcoma of the cervix, chorionepithelioma and carcino-sarcoma as they do not come into the group considered, and for the same reason cases under twenty-five years of age. One hundred and eighty cases were found reported in the literature and were considered in some detail. The histories were subjected to the judgment of Professor Koenig who applied the tests now in force at the Freiburg clinic.

Of one hundred and eighty cases, 55, or 30.5% were considered suitable for x-ray, 64.4% not suitable, and in regard to 5% a decision could not be made on account of the defective history. The actual error of diagnosis was found from the various tables which are given to have been 43.2% per cent. Now since sarcoma occurs in about 2% of the myoma cases, the error of diagnosis would be for all cases approximately .8%. This then represents the mortality which could be directly traced to sarcoma developing in myoma cases subjected to x-ray treatment. Recalling then the collective mortality of myoma operations of from 4 to 5%, and the percentage of cures of sarcoma operated on as only 25, it is seen that there is good reason for stating emphatically that the fear of sarcoma should not be a determining factor in deciding between x-ray and operative treatment for myomata. The decision should be made on other grounds.

SUGAR IN THE TREATMENT OF INFECTIONS

The principles underlying the use of sugar in dealing with bacterial infections Kuhn has published previously [6, 7]. They would seem to deserve more attention than they have received. In recent articles[8, 9] Kuhn briefly reviews the essential parts of what he has written before, and applies the principles to gynecology and obstetrics. The acidity of the vaginal secretion is connected with its bactericidal action, for as the acidity is diminished this action decreases. The acidity is due chiefly to the presence of lactic acid, but the anti-bacterial action is due chiefly, not to the lactic acid, but to biological processes, of which lactic acid is an end product. For bacteria produce acid, that is to say cause fermentation, or produce alkali, that is to say, cause putrefaction, according to the kind of food they have. It is the presence of some carbohydrate

substance in the vaginal secretion which makes possible the production of the lactic acid. If sugar, then, is introduced into the vagina, it will increase carbohydrate decomposition, decrease proteid decomposition, as most bacteria show a preference for the carbohydrate, and by its presence change over the pathogenic bacteria, temporarily, at least, into harmless saprophytes. Sugar has also a distinct antiseptic action in strong solutions and rapidly causes bacterial degeneration in weak solutions.

In obstetrical cases, a prophylactic use of sugar solutions might be made, increasing the resistance of the birth canal to infection, by physiological processes. During the puerperium, in any case in which intrauterine douches are indicated, the introduction of a sterilized solution of sugar, 25 to 50% in strength, would perhaps prevent uterine infection. Through osmotic action a free flow of lymph would be set up into the cavity of the uterus; by this the products of bacterial action would be neutralized, and the metabolism of any accessible germs would be so changed that they would no longer produce harmful toxins, but simply cause fermentation. Kuhn does not report results as shown by the treatment of cases, but the basis of treatment is well founded. Clinical results in several conditions are reported by others.

Prager-Heinrich[10] calls attention to the excellent results which have been obtained in the treatment of leucorrhea by means of "xerase," which consists chiefly of sugar and yeast. The treatment with a dry powder has given better results than douches or moist tampons. The cervix is exposed and the vagina is dried as thoroughly as possible. The powder may be introduced by a "powder blower," which is rather time consuming, or by means of a long handled small spoon, or just "shaken in." The powder is kept in place by a tampon. The next day "camomile tea douches" are given, but any mild astringent might be employed. Any form of leucorrhea can be benefited and even acute gonorrheal infection is amenable to a course of these applications. The per cent. of failures (all kinds of cases) as given by Prager-Heinrich is small, 7%.

There is an especially troublesome form of discharge which can be relieved by the use of sugar, namely, that from inoperable cancer of the cervix. Here Berczeller[11] has employed powdered sugar, introduced through a tubular speculum. The vagina is half filled with sugar, which is kept in place by a tampon of iodoform gauze. The treatment may be repeated daily or less frequently as occasion demands up to once a week. The foul odor and the discharge quickly disappear, the bleeding diminishes and the patient's general condition improves.

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THE AMERICAN NEUROLOGICAL ASSOCIATION.

THIRTY-NINTH ANNUAL MEETING, HELD AT WASHINGTON, D.C.

MAY 5—7, 1913.

THE PRESIDENT, DR. PEARCE BAILEY, NEW YORK, IN THE CHAIR.

PRESIDENT'S ADDRESS.

In all organic life there exists two principles for action, viz., desire and fear; desire showing itself as a tendency on the part of the individual to acquire for himself what is beneficial, and fear a tendency to avoid, by whatever means possible, what is harmful. There soon become associated with these two motives, the emotions of pleasure and pain. As evolution proceeds, these two motives become enormously elaborated to form instincts, and through all the instincts, one or both of them can be found. With the development of the intelligence, the instincts become very much checked and modified, so that desire shows a constructive purpose and fear becomes sunk in the unconscious, showing itself chiefly as prudence. Human personality is a combination of the instincts with fear and desire back of them, modified by the checks of the intelligence, but the fundamental motives can always be detected, and man, however much his primal characteristics may be hidden by the teachings of his intelligence, nevertheless remains essentially an egotistic individual. This can be shown by analysis, in his ordinary actions, and becomes very evident under any circumstances which accompany an unhinging, temporary or permanent, of his intellect. Thus, under the stress of violent emotions, of fatigue, of physical disease and especially of mental disease, the teachings of the intelligence are more or less lost sight of, and a man reverts or regresses to earlier types of behavior. Under these circumstances, he shows various phases of the evolutionary stages through which the race has passed.

PRESENT STATUS OF NEOSALVARSAN IN THE TREATMENT OF PARASYPHILIS OF THE NERVOUS SYSTEM.

DR. EDWARD D. FISHER, New York: Since the finding of the spirochetes in the brain and cerebrospinal fluid in general paresis and tabes the term parasyphilis must be discontinued. All diseases of the nervous system due to syphilis are due to the same active agent which is the cause of the pathological changes both in cerebrospinal syphilis and in the more chronic manifestations formerly classed under the head of parasyphilis. The discovery of the spirochetes gives us a rational basis for the use

of neosalvarsan. The question arises: What is the relative efficiency of this remedy in the later manifestations of syphilis of the nervous system, i.e., in tabes and general paresis? In my experience the hopes raised by Prof. Ehrlich's discovery have not been fully realized and can not be. We have only to consider the pathological changes in these diseases to understand the reason why. We have, however, with the Wassermann reaction test a rational plan of treatment in the use of neosalvarsan and mercury with iodides. As we find the Wassermann test negative we can stop our medication and resume it as it becomes again positive. It is certainly rational to remove the active agent of disease, as we can by the use of neosalvarsan, and thus prevent further extension of the disease. In the light of our present knowledge, we are in a position to make an early diagnosis, and the importance of beginning treatment early is emphasized. The importance of being conservative in our claims for this most valuable remedy should be emphasized as it must be many years before we can know whether its early employment, *i.e.*, at the time of the initial lesion, prevents the later manifestations of syphilis of the nervous system.

DISCUSSION.

DR. JOSEPH COLLINS, New York: I find myself accord with Dr. Fisher in regard to the necessity of once now and forevermore dispensing with the terms parasyphilis and metasyphilis. I am not sure that we all recognize a fact which seems to be a fact, namely, that when face to face with tabes and general paresis and what is known under the term of meningeal syphilis, we are not dealing with a nervous disease, but dealing with the disease syphilis. I understood Dr. Fisher to say that the spirochetes are found in the cerebrospinal fluid. I supposed that they had never been found in the cerebrospinal fluid.

DR. PHILIP COOMBS KNAPP, Boston: The clinical and pathological distinction thus far justify the division into ordinary syphilis and parasyphilis and this a convenient distinction which I think might still be held. In regard to the use of neosalvarsan and salvarsan my experience has been that there is a good deal still in Ehrlich's original claim that in syphilis of the nervous system the results are not so likely to be beneficial as in the early stages of syphilis manifesting itself in other organs of the body. Experience both with neosalvarsan and salvarsan in syphilis of the nervous system has not, on the whole, led me to believe that we have gotten so much more than we had in the use of mercury and iodine. In the last two months I have been trying the intraneural method and thus far the benefits of the method seem to be uncertain and possibly not of sufficient value to warrant the increase of danger that accompanies the use of that method.

REPORT OF A CASE OF JUVENILE TABES.

DR. C. EUGENE RIGGS, St. Paul: A boy seven and a half years old, no luetic history in either parent, no symptoms of hereditary syphilis began to have gastric crises when about ten months old; they now occur every three months. Marked ataxic gait, muscular weakness, knee and Achilles jerks absent. Positive Wassermann in blood serum and spinal fluid; no lymphocytosis, no globulin excess.

DISCUSSION.

DR. PHILIP COOMBS KNAPP, Boston: Cases of juvenile tabes are so rare that it seems permissable to speak of a case now in my wards, which, altho not confirmed by autopsy, seems to me probably a case of juvenile tabes. A girl of 16 of whom nothing can be learned in regard to her family history. At the age of five she was run over and her head injured, suffering several scalp wounds and being unconscious for a day. After that there was no trouble at all until the age of eleven, when her sight began to fail. At the age of twelve she had lost vision completely. Someone examining the eyes found optic atrophy of the so-called traumatic origin. There had been a history for one or two years of typical tabetic pains, sharp, shooting pains of brief duration. On examination there was some perception of light and well-marked primary atrophy of both disks, no indications of any keratitis, no radiating scars about the lips. The two central upper incisors were peculiar in that they were somewhat broad, but not characteristic of Hutchinson's. The knee jerks were absent on one side, obtained only by reinforcement on the other. There is marked Wassermann in the blood and the cerebrospinal fluid and globulin reaction, but no increased lymphocytosis.

DR. H. M. THOMAS, Baltimore. A boy of seven was sent to the surgical department of Johns Hopkins with the diagnosis of tumor, probably of the cerebellum. I was asked to see him in consultation. The child had been extremely bright up to the fifth year, when he had begun to deteriorate, and then it was thought that he had an injury. His deterioration took the form of being unable to speak as well as he had before; he had been loquacious; he became noisy and fretful and hard to manage and his walk became so unsteady that he could hardly get about. On examination he showed no sign of hereditary syphilis. He had no choked disk, his walk was distinctly cerebellar, his pupils were distinctly unequal; they did not react to light and his reflexes were exaggerated. The boy's blood gave the positive Wassermann reaction, and the diagnosis of cerebral syphilis was made. He was given two doses of neosalvarsan and changed markedly. He became quieter, his walk became steadier and he left the hospital having done pretty well. However, on getting home he became extremely quiet and in a week he was brought back in an absolutely different condition. At that time he was speechless, his walk was perhaps a little less ataxic, still he made no attempt to walk. The physical signs were the same. We did a lumbar puncture. He had a cell count of 33, positive globulin and positive Wassermann and a Wassermann in his serum was also positive. The case then seemed to be one of juvenile general paresis, and, as it was the only case, we did not venture to make that diagnosis, yet we have been extremely interested.

TWO CASES OF REMOVAL OF EXTRA-DURAL TUMOR OF THE SPINAL CORD.

DR. PHILIP COOMBS KNAPP, Boston: Tumors of the spinal cord are rare. In 3617 autopsies at the Boston City Hospital a tumor was found only four times, but the spinal cord was not always spared.

In 1294 patients in the neurological service a tumor was diagnosticated 10 times. In 11 cases operation has been performed in six cases with fatal results, in four with some improvement, so that the patient could get about on crutches, and in the fifth with marked improvement followed by a return of symptoms and a second operation. Two of these cases were reported:—

CASE 1. Woman, 40, married, nullipara. Menopause at 37. Considerable alcohol. Entered hospital May 20, 1912. For six months or more had had pain between the shoulders, shooting into arms and worse on motion. For three or four months the pain had been growing worse; for six weeks the legs had been numb and for two weeks paretic. Micturition was difficult, and the urine at times had to be drawn. Sexual desire unimpaired. Some rigidity of dorsal spine. Legs paretic and spastic. Knee jerks exaggerated, double Babinski. Sensibility diminished from level of ensiform cartilage downward. Unable to pass urine, which contained a trace of albumen and some pus. Wassermann and Noguchi in blood, positive. The cerebrospinal fluid was clear, 20 lymphocytes to a cubic millimetre; globulin reaction absent. Wassermann and Noguchi negative. Somewhat vague shadow in upper dorsal region. The paresis increased to complete paralysis, the spasticity was much greater. Salvarsan and mercury did not benefit her. July 30 laminectomy by Dr. E. H. Nichols. Two small masses were removed from external posterior surface of dura at level of sixth dorsal spine. Made a good surgical recovery. She gradually improved, regaining control of her bladder, being able to stand alone and walk with crutches, and having normal sensibility. She was still somewhat spastic and had exaggerated reflexes. She is still on crutches and in the hospital for chronic diseases.

CASE 2. Woman, 33, married, four children. Entered hospital July 30, 1912. Three years before, in the sixth month of her fourth pregnancy, began to have pain in right loin, buttock and leg. After delivery legs grew weak. Pain subsequently appeared in left leg. Loss of sexual desire, micturition and defecation imperative, occasionally incontinence. Gradual increase in weakness of legs. When first seen was unable to stand or walk without support. Sensation diminished below a line two inches below umbilicus. Tender over lower dorsal vertebrae. Some spasticity. Wassermann and Noguchi negative. Lymphocytes 20 to a cubic millimeter. Laminectomy August 16, by Dr. J. A. Hubbard. Small growth, apparently fatty, removed from posterior external surface of dura at level of eleventh dorsal spine. Dura opened, arachnoid bulged, no pulsation. Considerable fluid drained from arachnoid. Some fever and bedsore, but otherwise she made a good surgical recovery. Gradual recovery of motion and sensation. Able to stand and take a few steps on Sept. 7. Toward the end of October walked without crutches, and later improved so that she could walk half a mile, dance, and travel in the trolley cars alone. Early in January, 1913, she took cold, and her symptoms gradually returned, so that early in February she returned to the hospital in much the same condition as in the previous July, but the hyperesthesia extended to two inches above the umbilicus. There was a good deal of pain in the back and the legs were weak and spastic. March 15 the wound was re-opened by Dr. Hubbard, and the spinous process above was removed. No adhesions were found, but the cord was tense and did not pulsate. The dura was opened and much cerebro-spinal fluid escaped. She made a good recovery and was discharged April 21. There was then a very slight hyperesthesia with some allocheiria in the right leg. The right leg was somewhat hypertonic, but she had good strength in both legs and could walk with crutches or with very slight support. The operations that had been done in Boston, 14 of which had been already reported, had been collected, and showed the following results: Tumor removed 8, 6 improved, 2 died; tumor partly removed 7, 3 improved, 4 died; tumor found, not removed 4, 2 improved, 2 died; lesion found, not tumor 6, 3 improved, 3 died; nothing found 6, 3 improved, 2 died, 1 result uncertain. Shersburg collected 119 operations; of these 49 were benefited, 42 died.

A PECULIAR AND UNDESCRIBED DISEASE OF THE NERVES OF THE CAUDA EQUINA.

DRS. FOSTER KENNEDY AND CHARLES A. ELSBERG, New York: During the last five years, in a large number of spinal operations, 84 of which were performed by one of the writers, they have met with five cases alike in their histories, their clinical findings, and in the peculiar swelling and discoloration of the roots of the cauda equina, that they have been led to class them together in the belief that they form a definite clinical and pathological entity. Pain was present in the back of the thighs and legs in all of the patients; atrophy of the anterior muscles with loss of the power of dorsal flexion of the foot was present in 4; the objective sensory changes consisted of loss in the sacral and lowest lumbar nerves. The disorganization of the functions of the bladder and rectum was complete in four patients. The abdominal reflexes were regularly present, while the ankle jerks were lost in four; the knee jerks became lost coincident with the upward progress of the disease. The conditions found at operation were mainly a swelling and reddish-blue discoloration of many or all of the roots of the cauda equina. A thorough search of the literature failed to reveal any proven case like those described. A few cases have been reported in which a clinical diagnosis of neuritis of the cauda equina was made and the condition believed to be syphilitic, but in none of these was the diagnosis verified by operation or autopsy. A very similar disease has been described in the horse, and in these animals the postmortem examination revealed a condition very like that found in the patients operated upon and reported in the paper. The Wassermann test both in the blood and cerebrospinal fluid was negative in all of the cases, therefore the condition is not luetic; nor were there any signs of a meningeal lesion.

GIANT TUMORS OF THE CONUS AND CAUDA EQUINA.

DRS. JOSEPH COLLINS AND CHARLES A. ELSBERG, New York: The patient begins to complain of pain and stiffness in the back, extending down the posterior aspect of one and then of the other thigh. The pain is intermittent at first, later it is continuous. After the expiration of one year or more, the symptoms become worse, one or double drop foot appear, the lower limbs become weaker and stiffer, knee and ankle jerks disappear. Then follow difficulties in the functions of the bladder and rectum,

irregular sensory loss, rigidity of the lumbar vertebral column, tenderness of the lumbar spine. Peroneal palsies are regularly found with electrical changes. The patients are often suspected of tabes, and have usually been treated for long periods for sciatica. The important features of the clinical histories were the following. A history of one or more years' duration; pain in the small of the back, sooner or later extending down one and then the other extremity; stiffness of the back in the lumbar region; increasing weakness and stiffness of the lower extremities, with loss of power of dorsal flexion of the foot; slight disturbances of the bladder and rectum. The important features of the clinical examination were the following: Rigidity of the lumbar vertebral column; weakness and stiffness of the lower limbs; paralysis of the peroneal groups of muscles and sometimes of the tibialis anticus group; dropped foot on one or both sides; absence of knee and ankle jerks; tenderness of the lower lumbar spines; irregular and unsymmetrical sensory disturbances; lumbar puncture usually negative, no fluid obtained, Wassermann test and x-ray negative. The typical findings at operation consisted of a large reddish-brown, not vascular, tumor within the dura, which filled up the entire lower part of the spinal canal, surrounded the roots of the cauda equina and extended upward on the conus, with which it was not closely connected. The growth is not intimately connected with the inner surface of the dura, and can be easily freed, from after which the inner surface of the dura is found to be smooth and glistening. The growths are well encapsulated above, but are closely connected with the nerve roots below. The peculiar features of the tumors are: their large size; the late appearance of bladder and rectal disturbances; the relatively small amount of sensory loss in spite of the fact that the tumors fill up the entire lower part of the spinal canal; the benign course of the disease, without tendency to perforate the dura. Operative interference should be done in two stages by the "extrusion" method. If the cases are recognized early, radical removal of the growths should be possible.

The above three papers were discussed jointly.

DR. ARCHIBALD CHURCH, Chicago: I am reminded by Dr. Knapp's paper of an experience of comparatively recent date, which, while it might not be edifying, might be interesting; that was, the recurrence of three tumors followed by three successful operations on the same patient. The first tumor made its appearance four years ago. At the end of a year the patient was entirely paraplegic. Dr. Patrick saw the case in consultation. Dr. Murphy operated. A tumor was removed from the cervical region. She made an uneventful recovery and in the course of six months recovered. At the end of two years she began to have the same symptoms of spinal tumor and within six months had developed the same symptoms. A second operation found another growth in connection with the pia about an inch lower than the first tumor. Whether this was a recurrence of the first growth was not known. It was supposed to be essentially an independent neoplasm. For nine months she had comparative freedom. Two weeks ago she came back to Chicago for recurrence. Early last week a third operation was done and a third tumor removed. So there was one on the right, one on the front and one on the left. I have had two cases of cauda equina. Some eight years ago a surgical friend had the typical manifestations of caudal lesion. This endotheliomatous growth filled the entire neural cavity and was supposed to be so intimately related to the cord that no attempt was made to remove it. The man perished from kidney trouble. About three years ago I saw a young boy with terrible pains in the legs who had been treated as hysteria. After many months of observation he showed a little area of sensory loss corresponding to the cauda and upon this comparatively slight symptom, although the bladder was not materially affected, an operation was done and an infiltrating endotheliomatous neoplasm extending from the middle of the lumbar spine to the lower end of the sacral canal was uncovered. It was not thought feasible to remove it and safest to let the case take its course. The operation wound has remained perfectly solid. The symptoms have not increased, but a tremendous growth has invaded the abdomen so that he looks like a six-months' pregnancy. Apparently the pressure has been relieved from the caudal region so that further neural symptoms are inhibited and the growth has gone in the anterior direction. This large caudal involvement may be more frequent than we suppose.

DR. W. M. LESZYNSKY, New York: In regard to the difficulty of diagnosis in tumors of the cauda equina and inflammation of the roots, the mere fact that one can obtain no cerebrospinal fluid should lead one to make the differential diagnosis between the two conditions.

DR. WILLIAM G. SPILLER, Philadelphia: This subject of the root neuritis confined to the lower portion of the cord is one of great interest. One can't help wondering whether in this case there was a meningitis of a certain degree, possibly of a considerable degree, and whether the root changes were not part of this meningitis. Dr. Elsberg said that the cord showed nothing by the naked eye. There may be marked meningitis which is not to be detected by the naked eye at all. Tumors vary very greatly as to whether they are in the upper part of the cord or in the lower. In the upper they are more of the type of fibroma and endothelioma, well defined tumors that may be readily removed in most cases. In the lower part of the cord they are very much more malignant, infiltrating, liable to be of greater size and offering much more unfavorable conditions for removal. In one case of inoperable tumor I got Dr. Martin to cut the antero-lateral columns to remove the pain. It was very successful. The patient lived two years after that operation. He died a few months ago, with an enormous tumor filling a large part of the abdomen.

DR. JOSEPH COLLINS, New York: It seems useless, so far as the patient's restoration to a degree of health and usefulness is concerned, to operate on these caudal tumors as they are now being operated upon, my experience being that it does not give them any considerable degree of life and does not restore them to any degree of health. The significance of this fact is that we must diagnosticate these cases earlier than we do now. If we rely upon the presence or absence of the cerebrospinal fluid in a case that has the symptoms of caudal tumor in making the differential diagnosis, we will go wrong very frequently. I would make a plea for operation on caudal tumors in every instance at the time when suspicion enters our mind that these are present, and, second, for operation in tumors of the conus five, six, eight, ten years before the time they are now operated on.

A CONTRIBUTION TO THE PATHOLOGY OF MYASTHENIA GRAVIS.

DR. SIDNEY KUH AND DR. MORRIS BRAUDE, Chicago: Ours was a typical case of myasthenia gravis in a physician fifty years of age, of a duration of about five years. Examination of nervous system was made with the Weigert myelin sheath stain and Pal's modification of the same, Mallory's chloride of iron hematoxylin, Ford-Robertson's toluidin blue, thionin, Nissl's methylene blue, toluidin blue counterstained with erythrosin, uranium carmin, Van Gieson's stain, Weigert's fibrin stain and the same author's stain for elastic fibres were used on about 400 sections. Small areas of vascular sclerosis, recent (agonal?) hemorrhages, increase in glia tissue, corpora amylacea were found in the spinal cord. In the cervical region there was an aberrant bundle of fibres. In the higher levels of the cord capillary polymorphonuclear thrombi and chromatolysic and pigmentary changes were seen in the nerve cells. The relative intensity of these latter findings remained approximately constant, *i.e.* where the thrombi were numerous the changes in the nerve cells were greater. The same applied to medulla and corpora quadrigemina. In the cortex there was but little of these changes to be seen; more in the optic thalami. The muscles showed nothing that had not previously been described. There was no trace of the thymus found.

BILATERAL OCULOMOTORIOUS PALSY FROM SOFTENING IN EACH OCULOMOTORIUS NUCLEUS.

DR. WILLIAM G. SPILLER, Philadelphia: Bilateral oculomotorius palsy developing in an apoplectic attack, syphilitic in origin, implicating every muscle supplied by the eculomotorius in each eye, resulting from bilateral softening as two separate lesions confined to the nuclei of these nerves; without implication of other cranial nerves except the opticus, and without other symptoms except preceding mental disturbance, convulsions and some change in the patellar reflexes and succeeding extension of each big toe from plantar irritation are the chief features in the case reported in this paper. The author discusses the several symptom-complexes resulting from vascular occlusions he has studied, viz. the occlusions of the posterior inferior cerebellar artery, of the uppermost portion of the anterior spinal and adjoining portion of the vertebral arteries, of the cervical anterior median spinal artery, of the vessels supplying the inner segment of each lenticular nucleus, and (in the case reported in this paper) of occlusion of the vessels to the oculomotorious nuclei. In the last mentioned condition there are symmetrical softening and paralysis of all branches of the oculomotorius, although the paralysis may not be complete in all the muscles enervated by the nerve; there are also involuntary incoördinate movements and great rigidity with unconsciousness at the onset of the attack.

THE PERIMETRIC DEVIATIONS ACCOMPANYING PITUITARY LESIONS.

DR. HARVEY CUSHING, Boston: In a series of 104 examples of pituitary diseases, the greater number accompanied by manifestations of tumor, due either to an enlargement of the hypophysis itself or to a superimposed lesion, changes in the fields of vision have been present in a large proportion of the cases.

Few physicians at the present time venture to make a diagnosis of an hypophysial lesion in the absence of a bitemporal hemianopsia; and it has been our experience that the majority of the neurologists and ophthalmologists through whose hands these patients have passed, have hesitated to make such a diagnosis—although there were obvious deviations from the normal in the perimetric outlines—for the reason that these deviations did not show the characteristic bitemporal defect with a more or less definitely vertical meridian separating blind from seeing fields.

As a matter of fact, in a considerable number of these cases the field defect has been an homonymous one, for when the enlarging gland bursts through its dural capsule it may extend into the interpeduncular space to one side of the chiasm rather than in a median posterior position.

The opportunity has been given in this series of cases, not only in many instances to follow the progressive changes in the visual fields as the defect advances, but also to follow the steps by which the normal peripheries become restored after a transsphenoidal operation, when partial removal of the growth has afforded relief from pressure. These experiences have shown that in the majority of instances the defect advances in very characteristic fashion, usually beginning in the upper and outer temporal field and affecting color vision before vision for form.

These minor changes are as typical of a retrochiasmal lesion as is the full-blown text-book picture of complete bitemporal hemianopsia. Furthermore, the defect rarely advances with equal steps in the two eyes, and consequently for each individual eye it proves to be a matter of clinical convenience to divide the advancing process into stages, as follows:

Stage 1 shows merely a notch, often quadrantal, in the upper temporal field for color, though there may be in addition some slanting off of the form field. This is due to the fact that the ventral crossed fasciculus is affected by the pressure at an earlier stage than is the dorsal crossed fasciculus, the transmission of color impulses suffering earlier than the transmission of form impulses.

Stage 2. In this stage a beginning quadrantal constriction in the form field follows upon the quadrantal defect for colors.

Stage 3. Here color vision is more or less completely lost in the entire temporal field, the form constriction remaining practically quadrantal, with beginning encroachment upon the lower temporal field.

Stage 4. In this stage hemianopsia is complete for form and colors, the macula still being spared by the otherwise practically vertical meridian.

Stage 5. Hemianopsia remains complete for form and color, the macula now being included in the vertical meridian, there being in this stage often an actual complete macular blindness for colors.

Stage 6. Macular vision is lost for form as well as colors and the nasal field begins to shrink from the vertical meridian.

Stage 7. Color vision is entirely lost and a patch of vision for large objects remains, usually in the lower nasal quadrant.

Stage 8. Blindness.

The least affected eye progresses in the meantime along the same route; for it cannot be emphasized too strongly that the process rarely advances with equal steps in the two eyes. Indeed, commonly

enough, one eye may be completely blind, whereas the other may show a condition in Stage 1, or indeed with no observable change whatsoever.

Even after Stage 8, with blindness, has been reached some vision may be regained by operative measures; which goes to show that the disturbance is brought about, not only by an anatomical destruction of the fibres through a process of degeneration, but also by a physiological block to the transmission of impulses superimposed on the actual atrophic changes.

Though the prospect of a return of vision, therefore, is not utterly hopeless, even when blindness has supervened, it is, nevertheless, of great importance for us to recognize these evidences of chiasmal pressure in their early stages.

Pituitary disease, as I must continue to emphasize, is a common malady, heretofore largely overlooked. One serious complication of the disorder is a so-called primary optic atrophy; and this is in many respects the most obvious of the neighborhood symptoms and one for which surgical measures are as definitely indicated as when dyspnea is produced by pressure against the trachea in cases of goitrous enlargement of the thyroid gland.

(To be continued.)

Book Reviews.

Therapy at the Bonn Univeristy Clinics. Edited by PROF. DR. RUDOLF FINKELNBURG. Bonn: A. Marcus and E. Weber. 1914.

This German volume presents a purely practical therapeutic compendium from the medical, psychiatric, neurologic, surgical, ophthalmic, otologic, rhinologic, gynecologic, and dermatologic clinics at Bonn. The attempt is made by the editor to coördinate the methods of the various departments on the basis of etiologic treatment. Emphasis is also laid on negative therapeutic results and on special technic. Each section is by the chief of the respective clinic. Much of interest will be found by students and practitioners in every division of this book, which represents the cumulated experience of years in the professional life of leaders in the several departments of medicine.

The Principles and Practice of Medical Hydrology. By R. FORTESCUE FOX, M.D. (Lond.); F. R. Met. Soc. London: Hodder and Stoughton and Henry Frowde. University of London Press. 1913.

In the sub-title of this book, medical hydrology is defined as "the science of treatment by waters and baths." It is the work of a recognized English expert, issued in the series of London Medical Publications. The author aims "to discuss the various actions of water and baths on the body, without more detail than may enable medical men to apply for themselves these methods of treatment. The first section of the book describes the physiology of bathing, with a note on children's baths and school baths. The second section considers hydrotherapy, with a note on hydrotherapeutic institutions. The third deals with medicinal springs and baths, and the fourth with indications for hydrologic treatment. The volume is an interesting and convenient manual for those concerned with this important but often neglected department of therapeusis.

Medical and Sanitary Inspection of Schools. By S. W. NEWMAYER, A.B., M.D. Illustrated with 71 Engravings and 14 full-page plates. Philadelphia and New York: Lea and Febiger. 1913.

This volume, by the chief of the division of child hygiene of the Philadelphia Bureau of Health, is intended as a guide "for the health officer, the physician, the nurse, and the teacher" in the physical examination of school children. There are also chapters on the sanitation of school buildings and on methods of preventing epidemics of contagion in schools. The introduction describes the development of medical inspection of schools in the United States, a procedure first established in Germany, tentatively introduced in Boston a score of years ago, and now recognized universally as a measure of undisputed importance for the present and future public welfare. This work on the subject should prove an excellent practical manual for all concerned with the hygienic and sanitary administration of schools.

Text-Book of Anatomy and Physiology for Nurses. By AMY E. POPE. With 135 illustrations. New York and London: G. P. Putnam's Sons. The Knickerbocker Press. 1913.

"The object of this work is to provide a textbook containing more physiology than the books on anatomy and physiology hitherto provided for nurses." It is unfortunately true that physiology often gets scant attention or is altogether neglected in the instruction of nurses in training-schools, yet it is really more important than detailed knowledge of form. Interest in structure should not be allowed to overweigh interest in function; for the product is really the object of ultimate importance, not the machine. Hence the author's purpose in this book is especially laudable, and she has fulfilled it exceptionally well. The text is clearly written and well arranged, the illustrations are abundant and helpful, a number of them being in colors. There is an extensive and serviceable glossary, and a useful appended table of food values compiled by Miss Alice C. Keith. The book should find immediate recognition and prove a great aid to pupil nurses and to their teachers.

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MEDICAL LEGISLATION. THE PRACTICE OF DENTISTRY IN MASSACHUSETTS.

THE importance of medical legislation and of legislative measures affecting not only the public health but the practice of medicine, can hardly be overestimated in any community. Naturally such legislation, to be sound and equitable, should rest fundamentally on enlightened professional opinion. Unfortunately this opinion is often imperfectly formed, vague, or based on inadequate information. To crystallize the professional judgment of physicians on topics of legislative concern not only should be of advantage to them, but should be a definite aid to legislators desirous to further the public welfare by acting on the concerted counsel and opinion of medical men.

During the early part of the year, therefore, the JOURNAL will, as heretofore, devote especial editorial attention not only to legislative measures pending before the General Court, but to the discussion of desirable measures not yet shaped into actual form. It will aim in every case to state the facts clearly and impartially, to indicate the opinion of experts on the subject in hand, and to point out the probable effects, advantageous and disadvantageous, of the passage of the law or bill under consideration.

Of the measures early to come before the present session of the legislature, one of the most important is that affecting the practice of dentistry in Massachusetts. This measure was before the General Court in 1913, and was defeated by the opposition of those who did not approve the opportunity which the bill afforded for the employment of dental assistants to clean teeth, when such assistants were not themselves trained dentists. The present bill has been revised in such a way as apparently to make such employment free from any possibility of abuse, and at the same time productive of much good to the community. Its provisions are in substance as follows:—

"Section 1. There shall be a Board of Dental Examiners consisting of five persons, each of whom shall be a legal resident of this Commonwealth, a reputable dentist and a graduate of a reputable dental college, with an actual practice in dentistry in this Commonwealth for the five years next preceding his appointment. Said board shall examine candidates for registration in dentistry. The present members of the Board of Registration in Dentistry shall constitute this board and shall serve out the respective terms for which they have been appointed. No member of the board shall be a member of the faculty or board of trustees of any institution engaged in educating dentists.

"The governor, with the advice and consent of the council, shall have power to remove from office any member of said board for continual neglect of duty required by this act, or for incompetency or dishonorable conduct.

"Said board shall have full power to make and shall publish necessary rules and regulations for the proper fulfilment of its duties under this act. It shall choose one of its members chairman and one secretary and shall hold at least two regular meetings each year in Boston. A majority of the board shall constitute a quorum for the transaction of business. Said board shall keep a full record of its proceedings and a full registry of all persons certified as denists by said board, which shall be public records and open to inspection.

"A transcript of any of the entries in such record, certified by the secretary, shall be competent evidence of the facts therein stated. The board shall have the power to summon witnesses and to administer oaths and hear testimony in all matters pertaining to the duties imposed upon it by law. On or before the first day of January in each year, said board shall render to the Governor a full and accurate account of its proceedings, receipts and disbursements during the year immediately preceding."

The remainder of this section specifies the salaries, fees, time and place of meeting of members of the board.

"Section 2. After the passage of this act, any person over twenty-one years of age and of good moral character, who is a graduate of an accredited high school or presents proof of equivalent training and has received a diploma from the faculty of a reputable dental college,

as defined in this act, shall upon fulfilment of requirements for applicants as hereinafter specified, be entitled to examination by the Board of Dental Examiners. If found competent, he shall be registered by said board and shall receive a certificate of such registration signed by the secretary of the board, which shall be prima facie evidence of the right of the holder to practice dentistry in this Commonwealth. In proof of this right the certificate or a duplicate shall be kept in his office and shall be shown to any member or agent of the board on application.

A dental college shall be considered reputable which possesses the following qualifications:

"First: It shall be chartered and authorized by its charter to confer degrees of doctor of dental medicine or doctor of dental surgery.

"Second: It shall deliver a full course of lectures and instruction by a competent faculty and corps of instructors, said course to consist of not less than three separate academic years of not less than thirty-two weeks each of six days for each week, and shall require each matriculate to be a graduate of an accredited high school or to present proof of equivalent training."

The remainder of this section describes the details of application for examination:

"Section 3. No person not a registered dentist shall directly or indirectly practice dentistry in the Commonwealth of Massachusetts, except as provided in this act.

"It shall be unlawful for any person or persons to operate any dental office under any name or corporation name other than the name of the person or persons therein actually engaged in the practice of dentistry.

"Any person shall be said to be practicing dentistry within the meaning of this act who shall use the word or letters 'dentist,' 'D. M. D.', 'D. D. S.,' or any other letter or title in connection with his name, which in any way represents him as engaged in the practice of dentistry, or who shall for a fee, salary or other reward paid or to be paid, either to himself or to any other person, perform dental operations of any kind, diagnose or treat diseases or lesions of the human teeth or jaws, replace lost teeth by artificial ones, or attempt to correct or diagnose malposition thereof, or who shall advertise or permit it to be done by sign, card, circular, hand bill, newspaper or otherwise, that he will perform any or all of the aforesaid operations.

"But nothing in this act shall prevent any person from cleaning teeth under the direction of a registered dentist. The cleaning of teeth shall include only the removal of all stains and deposits from the exposed surfaces of the teeth and polishing said surfaces. Nothing in this act shall apply to treatment by a registered physician not practicing dentistry as a specialty, nor prevent a registered dentist of another state or his assistant from operating at a public clinic under the auspices of a duly organized and reputable dental college or association, nor prevent a student of a reputable dental college, incorporated under the laws of this Commonwealth, from performing operations as part of the regular college course.

"A registered dentist shall have the same right to prescribe or buy drugs or medicine for use in the conduct of his practice as the registered physician of this Commonwealth."

It will be seen that the object of previous contention lies in this third section of the bill, which makes it possible for an assistant or nurse, not a dentist, to be employed in "cleaning teeth under the direction of a registered dentist." This provision is intended especially for the benefit of the public in school dental clinics, where the cleaning of teeth is a large part of the work to be done and is an agent of great prophylactic value in anticipating dental caries. Obviously it is impossible that this should all be done by dentists. It must, therefore, either be left undone, or must be done by such competent assistants as those for which this act makes express provision. The possibility of violation of the spirit of the law seems obviated by its restrictions:

"Section 4. The Board of Dental Examiners, after giving due notice and hearing, may revoke or suspend the certificate of any dentist:

"First: For felony or misdemeanor involving moral turpitude, in which case a record of conviction or finding of guilt or a certified copy thereof, certified by the clerk of the court or the judge in whose court the conviction or finding of guilt is had, shall be conclusive evidence.

"Second: For gross ignorance or inefficiency in his profession or for obtaining a certificate of registration or any fee, by fraud or misrepresentation, or for the advertisement of dental practice, treatment or devices in which untruthful or improper statements are made, or for habitual intemperance or gross immorality, or for wilful violation of the provisions of this act.

"Said board by a majority vote may reissue a revoked certificate after one year from date of revocation.

"A dentist aggrieved by the action of the board in the revocation or suspension of his certificate, may apply to the Supreme Judicial Court in the county in which he resides, or in the County of Suffolk, for a writ of mandamus requiring them to revoke their decision if the same is found on hearing to have been erroneous."

Sections 5, 6, and 7 respectively provide the penalty for unregistered practice, repeal pre-

vious conflicting legislation, and fix the date at which the act shall take effect.

This measure, as it now stands, is approved by a majority of members of the Massachusetts Dental Society and, from a socio-political standpoint, by the Massachusetts Civic League. The latter organization has stated the following as some of the reasons why it advocates the passage of this bill:

"1. The Massachusetts dental law is behind those in most of the states. Other New England states have modern laws enacted in recent years. The aim of the proposed law is to bring Massachusetts up to date.

"2. This law will get under many of our difficulties. From ninety to ninety-eight per cent. of our school children have dental defects. Eighty per cent. of these defects could be prevented by proper cleaning of the teeth. Under the Massachusetts law no one but a registered dentist may clean teeth. There are not enough dentists to handle the school children alone. Cleaning teeth is a simple matter. The proposed law provides that it may be done by anyone under the supervision of a dentist, and that a dentist who abuses his privileges shall have his certificate taken from him. In short, under the new law we can prevent an enormous amount of dental decay and other defects.

"3. Bad teeth have an important part in the break-down of physical and nervous conditions. They are also directly responsible for the spread of contagious diseases. Cases are known where decayed teeth have carried disease germs for many months after the patient recovered, others catching the disease. Decayed teeth offer one of the best breeding grounds for germs.

"4. There is some tendency to the belief that this is not a social problem. To all who believe that it is better to take care of broken-down individuals there is perhaps no answer. To those who believe that it is the function of society to keep people on their feet there seems to be a good case to present. It is because of the constructive elements in the proposition that the Massachusetts Civic League has taken it up."

These reasons seem cogent.

The opponents of the proposed measure object to its provision for dental assistants on the ground that the latter may usurp the functions of dentists and interfere with the work of legitimate practitioners. It does not seem that with the careful restrictions now imposed by the revised measure this objection is any longer valid.

The present bill has been carefully drafted by a body of dentists after conference with all persons and parties concerned. We feel that it is a desirable and progressive piece of legislation, and recommend its passage into law.

THE MENTALLY DEFECTIVE IMMIGRANT VIEWED FROM A SOCIOLOGICAL STANDPOINT.

IN a recent number of *The American Magazine*, Arnold L. Gesell, now a teacher in Yale University, presents us with a eugenic study of "The Village of a Thousand Souls." The village contains 220 families and may be accepted as typical. In the course of his very interesting and illuminating article Professor Gesell states:

"We can appraise and classify the families of our Village of a Thousand Souls with reference to certain large characteristics. We can do this to some success without the assistance of a psychological laboratory because, after all, life itself is the most comprehensive test and the token of the character of these villagers. The school, the street, the places of work and business, the yards, the gardens and the playgrounds have been the public stage upon which the lives of the inhabitants of The Village of a Thousand Souls have been manifested."

In discussing the definition of feeble-mindedness Professor Gesell approaches the subject from the medical, pedagogical, psychological and sociological standpoints. From the medical standpoint feeble-mindedness may be said to be a permanent arrest of development of the nervous system, especially of the brain cortex. From the pedagogical viewpoint a feeble-minded person is one who cannot be taught to read, write or cipher, with any marked advantage to himself or to society. Psychologically, feeble-mindedness means that there is a condition of "permanent, incurable mental retardation limiting the individual to an intelligence less than that of a normal thirteen-year-old child." Viewed from the sociological aspect, Professor Gesell states that feeble-mindedness is a condition of relative mental incompetence, dating from birth or infancy, which makes it impossible for the individual to get along in the world on equal terms with his normal fellows. And it is this last definition which Professor Gesell found most useful for his eugenic survey of "The Village of a Thousand Souls."

A recent article by Dr. Bernard Glueck, of the United States Public Health Service at Ellis Island, deals with the problem of the mentally defective immigrant from the sociological standpoint. He has given us an original, sane paper which is well worth careful reading by all those who are interested not only in the immigrant but in the mentally defective in general.

After first reminding us that what we regard as the normal mind is but "the usual, the common, the everyday mind as we encounter it determining the usual, the common, the everyday conduct and behavior," and after calling our attention to the wide range of normality with its infinite possibilities for variations, Dr. Glueck next considers the definition of feeble-mindedness. He chooses the definition adopted by the British Commission for the Study of the Feeble-Minded. According to this definition the feeble-minded are individuals who on account of incomplete cerebral development are unable to perform their duties as members of society in the position of life to which they were born. This, it will be seen, is a social definition. It takes into account the native qualities and capabilities of the individual, his age, education, opportunities, race, etc. It considers the individual as a biological unit, as a member of the society or the community in which he will take his place.

The various measuring scales of intelligence, such as the Binet-Simon scale and the American modification by Goddard, although of the greatest usefulness in detecting feeble-mindedness, depend upon the comparison of the examined individual's intelligence with a given standard of average normal intelligence, for a certain race, under certain conditions. It gives us an artificial classification of feeble-mindedness, which can only serve to augment but cannot entirely replace the social one. This applies especially to the adult, and more particularly to the immigrant, in whom, in order to arrive at a rational conclusion with respect to the feeble-mindedness of an individual, as judged by the measuring scales, we must first have a definite idea of the average standard with which the results to be obtained are to be compared. It is necessary to know his past life history, his degree of adaptability in life as judged by his past performances, his daily conduct, his ability to earn a living and to lead a normal, law-abiding life. We must know whether he was able to look after himself and whether the normal instincts of man were properly controlled and directed.

In studying the defective immigrant from this standpoint Dr. Glueck endeavored to gain a correct idea of the average normal intelligence of a given race and for this purpose he selected at random fifty individuals of the Polish race, ranging from 18 to 40 years of age, whose outward appearance suggested nothing abnormal, who had never attended school and did not know how to read or write. The tests employed were chiefly performance tests, the element of language being thus eliminated to as great an extent as possible. For the series of tests employed reference should be made to the original article. Dr. Glueck's conclusion is worthy of quoting verbatim: "Here we have fifty individuals who were as near alike in most respects as is possible among human beings. Under circumstances which were as nearly alike as possible, these individuals were given the same thirty-eight problems for solution, and the results of correct answers varied all the way from eighteen to the full thirty-eight."

The lesson is plain: The measuring scales have, up to the present, consisted in an examination of the knowledge or intellect of the individual. We have too often lost sight of the fact that man is a feeling, living, active being, with emotions and instincts. The biologic and sociologic approach to the study of the mind of man is the only rational method of approach. It is fundamental and basic. The psychologic tests cannot entirely replace but must be considered in connection with the life-history of the individual. We believe, with Dr. Glueck, that it is possible to evolve a set of questions which would represent, as nearly as possible, what the average immigrant of a given race should be able to accomplish mentally, if he is to be considered normal.

NATIONAL INSURANCE IN GERMANY.

The first of January marks the culmination of an important struggle in Germany between the medical profession and the insurance societies through which the national sick and benefit insurance is administered. The grievance of the German doctors, as of the British, is that they are not adequately recompensed for panel work, and that free choice of physicians by patients is not allowed. Negotiations between them and the insurance companies were pending throughout the past summer, but were frustrated by representatives of the companies.

Finally on Oct. 26, a representative meeting of physicians, held in Berlin, voted that "on and after Jan. 1, 1914, the insured population of Germany,—Dresden, Hamburg, and Berlin ex-

cepted,—shall not receive treatment through the insurance societies unless the latter meet the demands of the profession or the government sees fit to interfere." Following this action special meetings and conferences of medical societies and insurance agents were held on Nov. 5 in Munich and Baden. The federation of insurance societies, however, refused to comply or to recognize the right of the doctors to organize the profession for the protection of the general practitioner.

On Nov. 12 the Berlin Medical Society, at a special meeting, endorsed the action of the representative meeting of Oct. 26 by the passage of the following resolution:—

"In consideration of the fact that the manner in which the insurance societies desire to regulate the relation between the doctors and the societies under the new State Insurance Order most seriously imperils the freedom and independence of the medical profession, both of which are absolutely necessary for the continued scientific education and for the beneficial activity of the doctors, in the interest both of the patients and themselves, the *Berliner medizinische Gesellschaft* joins whole-heartedly with the German medical profession in its struggle with the managers of the insurance societies."

Thus matters have stood until the present time. If the doctors remain firm and united, they will effectually block the operation of the national insurance law on and after today. Either the companies must yield or the crown will intervene to settle the dispute.

We have not yet the subject of national insurance among the vexing problems of professional life and legislation in our country; but it may come to vex us sooner than we now expect. Meantime the experience of our German and British brethren is full not only of intense interest, but perhaps of profitable precedent.

MEDICAL CERTIFICATION FOR MARRIAGE.

THE reported refusal of members of the Milwaukee Medical Society to issue for three dollars certificates of complete physical examination and fitness for marriage, is evidence of a sensible reaction against the impracticability of enforcing a so-called eugenic marriage law requiring such medical certification of the contracting parties before the issuance of a marriage license. Such an examination as could reasonably be expected for that fee would be worth little for the detection of possibly communicable venereal infections, or of susceptibility to other undesirably transmissible diseases. Moreover, even with the most complete possible physical examination, a conscientious physician must in many cases hesitate to guarantee a man or a woman fit for matrimony. Finally, if the state makes it impossible to procure marriage licenses without medical certificate, the very persons whose procreation is least desirable will take measures to secure the ends of matrimony without license. After all, marriage, in the long run, must, like all other contracts, rest ultimately on the mutual confidence of the contracting parties. A man whose word cannot be trusted that he has not had syphilis or gonorrhea prior to marriage, cannot be trusted not to acquire them after the issuance of his medical certificate.

THE DIAGNOSIS OF HAMLET.

THE interest manifested from time to time in the medical problems afforded by Shakespeare's characters is only another evidence of the intense and vital reality of the personages whom he created. Indeed, in this respect, they equal Napoleon and the monarchs of England in the amount of post-mortem discussion to which they have given rise.

Recently an editorial in *The Medical Press and Circular* has essayed another inferential diagnosis on Hamlet. "Gouty diathesis, ptosis, and auto-intoxication" are held to be the pathologic trilogy which accounts not only for his obesity, cardiac symptoms, and other physical signs, but for his alternate saturnine gloom and hysteric gaiety. It is not long since one of the Freudians settled upon him the universal Oedipus complex. (This, by the way, will doubtless also soon be found in Peter Pan.) Next the endocrinologists will probably "explain" Hamlet, like Napoleon Bonaparte, on the basis of hypopituitarism.

As a matter of fact, Hamlet, whatever his physical organization, had a sane and noble mind; which remains for us as the most nearly perfect portrait that Shakespeare has left of himself.

MEDICAL NOTES.

EDWARD N. GIBBS MEMORIAL PRIZE FUND.—This fund was established by the wife and daughter of the late Edward N. Gibbs, and its income, which amounts to about five hundred dollars, is used in aiding investigators into the cause and treatment of diseases of the kidney. The recipient of the fund is chosen annually. The committee will select the worker for 1914, about the first of February, and requests all persons who desire to work under this fund, to send to the committee of the Edward N. Gibbs Memorial Prize Fund, 17 West 43rd Street, New York City, their application, together with a statement of their fitness to prosecute such investigations, giving the laboratory in which they have studied, and any researches conducted by them, in order that the committee may be guided in the selection of the recipient of the fund for 1914.

AMALGAMATION OF OHIO MEDICAL SCHOOLS.—Report from Ohio on Dec. 24 states that all details have finally been arranged for the projected union of the Starling Medical College with the medical school of Ohio State University.

MANUFACTURE OF MESOTHORIUM IN AMERICA.—It is announced on Dec. 21 that a Philadelphia corporation is to begin the commercial manufacture of mesothorium in this country, from extensive thorium-bearing deposits which it controls in the Carolinas.

TYPHOID FEVER IN WASHINGTON.—Report from Centralia, Wash., on Dec. 19, states that typhoid fever is at present epidemic in that town. On Dec. 15 and 16, 42 new cases of the disease were reported, making a total of 160 since the beginning of the outbreak.

DANGERS OF TRICHINOSIS.—On Dec. 21 the United States Department of Agriculture issued at Washington, D. C., a statement warning the public against the dangers of consuming uncooked pork. It has been found that of all hogs examined by government inspectors 1.41% are infected with trichinosis.

AN ABSTINENT CENTENARIAN.—William E. Tearis, who died in Jersey City, N. J., on Dec. 18, 1913, is said to have been born in 1810 at Huddersfield, England. He migrated to the United States in 1820. It is reported that he ascribed his persistent good health and longevity to his habits of deep breathing, interest in public affairs, and abstinence from alcoholic beverages.

SMALLPOX ON THE OHIO.—Report from Guantanamo on Dec. 18 states that the United States battleship *Ohio* was quarantined at that port on her arrival from the Mediterranean with smallpox aboard. One sailor died of the disease during the voyage, and 11 cases are now under treatment. The source of the infection has not been determined.

EUGENICS IN MILWAUKEE.—Report from Milwaukee, Wis., on Dec. 17, states that the Milwaukee Medical Society has voted that its members shall not issue, at the statutory charge of $3, certificates of complete physical examination and fitness for marriage, as required by the new eugenic marriage law in that state.

BOSTON AND NEW ENGLAND.

HOSPITAL CONCERTS FOR JANUARY.—It is announced the concerts of the Boston Hospital Music Fund for January, 1914, will be given at 2 p. m. as follows:—

Jan. 4—Cambridge Homes for the Aged.
" 11—St. Elizabeth's Hospital, Boston.
" 18—St. Luke's Home for Convalescents, Roxbury.
" 21—Home for Destitute Catholic Children, Boston.
" 25—Boston City Hospital.

HONOR TO A BOSTON SCIENTIST.—It is announced that Dr. Charles Sedgwick Minot, professor of comparative anatomy at the Harvard Medical School, has been recently elected an honorary member of the Anatomical Society of Great Britain and Ireland.

WORK OF RHODE ISLAND HOSPITAL.—The recently published fiftieth annual report of the trustees of the Rhode Island Hospital, at Providence, records the work of that institution for the year ended Sept. 30, 1913. During this period the total number of patients treated in the hospital was 7881; the total attendance in the out-patient departments, 40,414; and 4278 cases were treated in the accident rooms. Thirty-six nurses were graduated from the training school, and 101 autopsies were performed by the pathologist. There was a large pecuniary deficit.

INFECTIOUS DISEASES.—Cases of infectious diseases reported to the Boston Board of Health

for the week ending Dec. 23, 1913: Diphtheria, 42, of which 3 were non-residents; scarlatina, 89, of which 11 were non-residents; typhoid fever, 8; measles, 44; tuberculosis, 56, of which 1 was non-resident. This last item was for the week ending Dec. 20, 1913.

The death-rate of the reported deaths for the week was 19.57.

NEW YORK.

AMENDMENT OF SANITARY CODE.—At a recent meeting the City Board of Health passed a resolution amending the Sanitary Code by adding a new section, to take effect March 1, 1914, and to read: Bichloride of mercury, otherwise known as corrosive sublimate, shall not be held, kept, sold or offered for sale at retail in the dry form, except in colored tablets individually wrapped, the wrapper to have the word *"Poison"* in plain letters conspicuously placed, and dispensed in sealed containers of glass conspicuously labeled with the word *"Poison"* in red letters. This section, it is announced, does not apply to tablets containing one-tenth of a grain of bichloride, or less. The board has also placed trichinosis among the notifiable diseases.

HEALTH EXHIBIT.—On Dec. 17 a permanent health exhibit was opened in the building of the Department of Health, on Centre Street, and on this occasion the principal speaker was the venerable Dr. Stephen Smith, known as the "father of the New York Health Department," who was health commissioner from 1868 to 1875. Commissioner Lederle presided, and others who spoke were Prof. Charles F. Chandler, health commissioner from 1875 to 1883, and Drs. A. Jacobi, H. M. Biggs, and T. Mitchell Prudden. Among the exhibits is a fine model of the Otisville tuberculosis sanatorium.

A WET CLEANER.—The New York Edison Company, against which the Health Department has so long been bringing complaints for maintaining a smoke nuisance, has now, after a course of experimentation lasting three years and involving, it is said, an expenditure of $500,000, succeeded in securing an apparatus, known as a wet cleaner, which removes the objectionable qualities from the smoke from its plants. The smoke is driven at high speed through a large tank of water, and in this is left practically all the material which constituted a nuisance.

WORKMEN'S COMPENSATION LAW.—The workmen's compensation law, which was recently passed by the legislature, fixes rates of compensation the general basis of which is two-thirds of the average rate of wages paid at the time of injury, and each specified disability is to be compensated for by the payment of this average weekly sum for a defined number of weeks. In case of permanent partial disability the aggregate of weekly payments is limited to $3,500, while in case of death the employer is to pay funeral expenses not exceeding $100 and to pay to dependents of the deceased workman, as specified, an amount not more than two-thirds of the weekly wages. This ceases in case of a widow, with re-marriage; when, however, two years' compensation may be paid in a lump sum. In case of children the payment ceases when the age of 18 is reached. The only exception to the employer's liability is when "the injury is occasioned by the wilful intention of the injured employee to bring about the injury or death of himself or another, or where the injury results solely from the intoxication of the injured employee while on duty."

NEW HOSPITAL IN BROOKLYN.—A recent ten-day campaign in Brooklyn to raise $100,000 to erect a hospital for the House of St. Giles the Cripple, a home for crippled children at Garden City, resulted in the securing of $105,000. The movement was under the direction of Dr. B. B. Mosher, surgeon-in-chief to the institution. It is purposed to locate the new hospital in Brooklyn, and when the patients become convalescent they will be transferred to the Garden City home.

INADEQUATE PROVISION FOR FEEBLE-MINDED.—In a report of the committee on idiots and feebleminded of the State Board of Charities it is stated that, while it is estimated that in the state of New York there are not less than 30,000 persons who should be segregated for their own protection and the good of the community, the state, including the minor political divisions, up to the present time has made provision for less than 4,000. With the completion of Letchworth Village and the contemplated extensions at the institutions at Rome and Newark, provision will have been made for the care of approximately 7,000; and the committee urges the expediting of the plans for these.

Current Literature

MEDICAL RECORD.

DECEMBER 13, 1913.

1. KERRISON, P. D. *Surgical Treatment of Diffuse Suppurative Labyrinthitis.*
2. *LEVIN, I. *Radium and Roentgen Therapy in Cancer.*
3. DIEFFENBACH, W. H. *Radium in the Treatment of Cancer.*
4. HARTSHORN, W. M. *Chorioepithelioma—with Report of a Fatal Case.*
5. ROUSSEL, A. E. *Acute Phlegmonous Cholecystitis: Report of a Case with Gangrenous Enteritis.*
6. GROS, E., AND REHFUSS, M. E. *Radiography in Pulmonary Gangrene.*

2. Levin discusses the value of radium in the treatment of cancer. It is indicated, he says, in all inoperable cases. Some cases are made operable by radium treatment, the malignancy being greatly diminished. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

DECEMBER 13, 1913.

1. PEDERSEN, V. C. *Pus in the Urine.*
2. FITCH, W. E. *The Theory and Treatment of Diabetes.*
3. KNOPF, S. A. *The Physical, Mental, and Moral Vigor of Our School Children.*
4. HOGNET, J. P. *Spina Bifida.*
5. ORBISON, T. J. *The Kinetic Neuroses and Psychoses.*
6. ALEXANDER, R. M. *Intestinal Obstruction Due to a Benign Pelvic Tumor.*
7. MACY, M. S. *Medical Sociology in the Public Schools.*
8. BALLAGI, J. *An Epidemic of Trichinosis in Pennsylvania.*
9. PARKER, G. H. *The Nervous System: Its Origin and Evolution.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

DECEMBER 13, 1913.

1. *PEARCE, R. M. *The Scientific Basis for Vaccine Therapy.*
2. *WRIGHT, H. W. *The Problem of the Criminal in the Light of Some Modern Conceptions.*
3. BILLINGS, F., AND ROSENOW, E. C. *The Etiology and Vaccine Treatment of Hodgkin's Disease.*
4. LOWENBURG, H. *Etiology of Artificial Feeding. A Plea for the Study of Breast-Milk Problems.*
5. *HUFFMAN, O. V. *A Theory of the Cause of Ectopic Pregnancy.*
6. VOEGTLIN, C., AND WACHT, D. I. *Isolation of a New Vaso-constrictor Substance for the Blood and the Adrenal Cortex. Presence of the Substance in the Blood and Its Action on the Cardiovascular Apparatus.*
7. OTTENBERG, R., AND KALISKI, D. J. *Accidents in Transfusion. Their Prevention by Preliminary Blood Examination, Based on an Experience of One Hundred and Twenty-eight Transfusions.*
8. GREY, E. G., AND EMERSON, L. E. *A Striking Acquirement of Visualizing Power and the Development of Dreams Following a Cerebral Tumor Extirpation.*
9. HEMMETER, J. C. *Hyperthyroidosis of Intestinal Origin.*
10. THOMPSON, W. G. *Efficiency in Nursing.*
11. BEARD, R. O. *The Trained Nurse of the Future.*
12. HOWLAND, J. B. *Obligations of Hospitals and the Public to Training Schools for Nurses.*
13. EISENBREY, A. B. *Arteriovenous Aneurysm of the Superficial Femoral Vessels.*
14. CHRISTIAN, S. L., AND SANDERSON, E. L. *A New Method of Anastomosing the Ovarian Tube or Vas Deferens.*
15. LAWSON, G. B., AND THOMAS, E. A. *A Case of Hodgkin's Disease Treated with Benzine.*

1. Pearce believes that prophylactic vaccination rests on a sound scientific basis, but curative vaccination has no sound experimental basis. The only logical method is the use of autogenous vaccines. Mixed vaccines commercially prepared are unscientific and non-ethical. Vaccines rarely cure but rather aid by stimulating a languid process of immunization.

2. Wright makes a very sane plea for the more careful and systematic study of the criminal class and the individual criminal with the view to the gradual abolition of the penitentiary and the treatment of the criminal as a diseased individual and not a social malefactor.

5. Huffman, examining 68 specimens of tubal pregnancy found malformation of the tube in 54%. He believes that this evidence, besides the negative findings in regard to any obstruction or inflammation, is sufficient to warrant the establishment of the anomalous-embedding-area theory as the most logical of all explanations for ectopic pregnancy. [E. H. R.]

THE ARCHIVES OF INTERNAL MEDICINE.

NOVEMBER, 1913.

1. LUSK, G. *The Cause of the Specific Dynamic Action of Protein.*
2. *HARMER, T. W., AND DODD, W. J. *Sources of Error in the Use of the Stomach-Tube for Diagnosis. Preliminary Report.*
3. ASCHOFF, L. *Thrombosis.*
4. *HAWLEY, M. C. *Studies of Blood-Pressure in States of Excitement and Depression.*
5. WELLER, C. V. *Age Incidence in Carcinoma.*
6. WARTHIN, A. S. *Heredity with Reference to Carcinoma.*
7. HOPKINS, A. H. *A Clinical Study of Vagotonia.*
8. *LAMB, A. R. *Experiences with Prophylactic Typhoid Vaccination: Its Effect on Menstruation.*
9. *HAUGLIK, P. J., AND COLLINS, R. J. *Hexamethylenamin: The Liberation of Formaldehyd and the Antiseptic Efficiency under Different Chemical and Biological Conditions.*

2. Harmer and Dodd present a series of x-ray photographs which show gastric stasis in cases where the stomach tube had failed to obtain fasting contents. The source of error lies in the fact that the tube does not always accommodate itself to the curves of the stomach wall and its tip may become impinged so that it does not reach the most dependent portion of the organ. The writers point out that failure to recover gastric residuum with the unaided stomach tube cannot be accepted as conclusive evidence of the absence of gastric stasis.

3. Aschoff discusses at length the experiments of many investigators on the subject of thrombosis. Neither endothelial damage nor a direct coagulation

of the blood play any rôle in thrombosis formation. Slowing of the blood stream and alteration of the blood elements themselves, especially the platelets, are the chief factors in the production of both static and toxic thrombosis. In the formation of static thrombi slowing of the blood stream is of prime importance, while for the toxic varieties changes in the blood elements have the dominating influence. Coagulation of fibrin almost inevitably follows thrombosis. First comes the erection of a morphological structure by a process of agglutination. Fibrin ferment is obtained from the agglutinated elements and cements them together by coagulation.

4. Hawley studied the blood pressure in mental cases at the Illinois Psychopathic Institute. In mania, he observed that pressure was always elevated. In stuporous cases it was low, probably because of relaxed blood vessels. In depressed states blood pressure is lower than in manic states, but higher than in stuporous states. In melancholia it is normal unless there is muscular resistance or some other factor to produce a rise.

8. Lamb reports the results of prophylactic inoculation against typhoid fever among nurses and attendants at the Presbyterian Hospital, New York. Of especial interest are his observations on the effect of the vaccine upon menstruation; 53% of the nurses vaccinated showed some type of menstrual disturbance, the type being very variable and more than one occurring occasionally in one person. Allowing for unavoidable errors in deduction, there is a very striking relationship between the vaccine and the menstrual disturbances, and between these disturbances and those seen in typhoid fever. The writer believes that the vaccination of women should be so arranged that the first inoculation will come a few days after a period. The second and third injections can then be given at seven-day intervals, leaving about a week before the succeeding period. A pregnant woman should not be vaccinated unless there is urgent indication for it.

9. Hanglik and Collins report on an elaborate clinico-chemical study of the antiseptic action of hexamethylenamin in body fluids. They find that hexamethylenamin itself is not bactericidal and that its beneficial therapeutic effects depend upon the formaldehyde liberated from it. This liberation depends upon the excess hydrogen ion concentration of the solution above the neutral point. Alkalies prevent and acids facilitate this liberation of formaldehyde in all normal and pathologic body fluids. After administration hexamethylenamin is present, but does not liberate free formaldehyde in blood, cerebrospinal, pleural, pericardial and synovial fluids, vitreous and aqueous humors, and alkaline urine. Formaldehyde is liberated in acid urine and in the acid gastric contents. The administration of monosodium phosphate with hexamethylenamin, by rendering the urine acid, facilitates this liberation. The administration of alkalies with hexamethylenamin is irrational.

[L. D. C.]

THE LANCET.

NOVEMBER 22, 1913.

1. GODLEE, R. J. *The Origin and Growth of the Royal College of Surgeons of England.*
2. DUCKWORTH, D. *Some Requirements for Modern Clinical Teaching.*
3. RUSSELL, J. S. R. *The Treatment of Neurasthenia.*
4. *COLLINSON, H. *Notes on Four Cases of Ureteral Calculus, in One of Which a Complete Cast of the Ureter was Present.*
5. *CROWE, H. W. *The Primary Cause of Rheumatoid Arthritis.*
6. TAYLOR, A. L. *A Case of Tumor of the Pituitary Body.*

4. This is an interesting clinical description of four cases of ureteral calculus, including one in which there was a remarkable calculous cast of the entire left ureter. The treatment and diagnosis of this condition is discussed briefly.

5. Crowe describes rheumatoid arthritis as a disease caused primarily by a common inhabitant of the skin, the micrococcus epidermidis deformans. These conclusions, if true, are of interest. [J. B. H.]

NOVEMBER 29, 1913.

1. GRIFFITH, T. W. *The Development of Our Knowledge of the Diseases of the Heart.*
2. MERCIER, C. A. *Astrology in Medicine.*
3. BAYON, H. *The Leprosy Problem in the British Empire.*
4. *STEPHENSON, S. *Tuberculosis of the Eye.*
5. GLOYNE, S. K. *The Examination of Tuberculous Pleural Fluids.*
6. ALLAN, G. A. *Tuberculous Meningitis (Bovine Infection) in an Infant Aged Twelve Weeks.*
7. JONES, A. R. *The Free Air Treatment of Skin Grafts.*
8. DYKES, A. L. *Eye Coloration in Relation to the Incidence, Severity and Fatality of Scarlet Fever and Diphtheria.*

4. This paper is a careful review of the general subject of ocular tuberculosis, including a fair bibliography. It presents nothing new. [J. B. H.]

BRITISH MEDICAL JOURNAL.

NOVEMBER 15, 1913.

1. *MOTT, F. W. *The Degeneration of the Neurone in the Light of Recent Research, Especially in Relation to Syphilis and General Paralysis.*
2. *BELL, W. B. *The Relation of the Internal Secretions to the Female Characteristics and Functions in Health and Disease.*
3. SHARP, J. G. *Epidemic Cervical Adenitis.*
4. WILSON, A. C. *Treatment of Gonorrheal Epididymitis by Bur's Method.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF TROPICAL MEDICINE.

5. *DOUGLAS, S. R., ET AL. *Discussion on Dysentery.*
6. PRICE, G. B. *Discussion on the Causes of Invaliding from the Tropics.*
7. CANTLIE, J. *Some Recent Observations on Sprue.*
8. BIRT, C. *Phlebotomus Fever and Dengue.*
9. LOW, G. C., ET AL. *Discussion on Filariasis.*

1. Mott discusses the evidence supporting the syphilitic origin of general paralysis and tabes dorsalis, describes the work of Noguchi, and his own investigations on this subject. There are some interesting plates.

2. Bell discusses the effects of excessive ovarian, thyroid, suprarenal and pituitary secretion upon the female characteristics, as well as insufficiency of the same secretions and their effects.

5. Douglas and others discuss the subject of amebic dysentery from various points of view, as to diagnosis, treatment, statistics, pathology and morphology. [J. B. H.]

NOVEMBER 22, 1913.

1. GEBHARD, T. W., AND HARRISON, L. W. *The Treatment of Syphilis in Its Earlier Stages.*
2. *SCOTT, G. B. *The Treatment of Syphilis at the Royal Naval Hospital, Chatham.*
3. JORDAN, A. E. *"Standard" Opaque Meal for Radiographic Examinations.*
4. ALDONS, G. F. *Some Acute Abdominal Cases.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF BACTERIOLOGY AND PATHOLOGY.

5. *DIXON, W. E., WOODHEAD, G. S., THIELE, F. H., EMBLETON, D., AND GOODALL, E. W. *Anaphylaxis.*
6. COPLANS, M. *The Action of the Asbestos Minerals and Allied Materials on Bacterial and Other Substances.*
7. FARRANT, R. *Hyperthyroidism: Its Experimental Production in Animals.*
8. GALT, H. M. *On the Value of the Blood Count as an Aid to Diagnosis in Obscure Bacterial and Other Infections.*
9. *BUCHANAN, R. M. *Empusa Muscae as a Carrier of Bacterial Infection from the House-fly.*
10. CROFTON, W. M. *Two Cases of Paratyphoid B. Infection Treated with Vaccine.*
11. COPLANS, M., AND LLOYD, W. G. *On the Action of Asbestos on Certain Physiological Substances.*
12. LYONS, W. C. *Proteose-free Tuberculin.*

1, 2. These are excellent short practical papers dealing with syphilis and its treatment. Although nothing new is presented, the subject is handled so clearly and concisely as to render the article of distinct value.

5. These papers are of scientific rather than clinical interest. The difficult and complex subject of anaphylaxis is discussed from various standpoints.

9. Buchanan discusses the house-fly as a carrier of infection, especially of various fungoid growths such as empusa muscae. There are numerous excellent plates descriptive of this growth. [J. B. H.]

NOVEMBER 29, 1913.

1. *LEWIS, T. *Paroxysmal Dyspnea in Cardio-Renal Patients, with Special Reference to "Cardiac" and "Uremic" Asthma.*
2. BAYON, H. *The Clinical and the Bacteriological Aspects of Leprosy.*
3. BLAXLAND, A. J., AND CLARIDGE, G. P. C. *Remarks on Acute Pancreatitis, with Notes of Seven Cases.*
4. *DEANESLY, E. *The Diagnosis and Treatment of Intestinal Obstruction.*
5. LAWRENCE, H. G. *A Case Contributing to the Study of Fever Without Other Physical Signs.*
6. HEATH, O. *The Significance of Frequency and Tenesmus in Acute Cystitis.*
7. PARKER, R. *A Simple Splint for Flail Elbow.*

1. Lewis discusses cardiac and renal asthma as seen in many cardio-renal cases and discusses the cause of this phenomenon. Fundamentally he believes it to be due to an increased acidosis of the blood, which he discusses in some detail.

4. Deanesly discusses at some length the diagnosis and treatment of intestinal obstruction. He believes that large numbers of patients die each year from intestinal obstruction of a mechanical nature easily remedied by operation, who have been treated for chronic constipation with drugs, etc. He describes the symptoms, signs, etc., and operative treatment of this condition. [J. B. H.]

THE QUARTERLY JOURNAL OF MEDICINE.

VOL. 7. NO. 25. OCTOBER, 1913.

1. *RITCHIE, W. T. *Further Observations on Auricular Flutter.*
2. *GRAHAM, G., AND POULTON, E. P. *On the Variations in the Excretion of Endogenous Uric Acid Produced by Changes in Diet.*
3. HALL, I. W. *Review. Uricemia and Gout.*
4. *PARKINSON, J., AND ROWLANDS, R. A. *Strychnine in Heart Failure.*
5. *SUTHERLAND, G. A., AND PATERSON, H. *On a Type of Cerebral Mal-development (Forebrain Aphasia).*
6. *WALLIS, R. L. M. *On Sulphemoglobinemia.*

1. By auricular flutter is meant an extremely rapid but rhythmical action of the auricles, as distinguished from auricular fibrillation, in which there is a complete absence of rhythm. Ritchie has observed one case of auricular flutter and complete heart-block for seven and one-half years; the auricular rate varied from 250 to 276 a minute. Lately, however, the auricular rate has fallen to 190, and there has been a change in the electro-cardiagram and the auricular rate has become subject to vagus control, so that Ritchie considers the present state of the heart to be one of auricular tachysystole rather than true flutter. Ritchie also describes in detail the findings in the heart of a fatal case of flutter, in which lesions of the sino-auricular node were the most conspicuous. Lastly, he reports a case in which there were transitions between fibrillation, flutter, and an intermediate state. Under the influence of digitalis, as often happens, the condition changed to one of permanent fibrillation. This change has an analogy in the change from flutter to fibrillation noted experimentally when the vagus is stimulated during faradization of the dog's heart.

2. Graham and Poulton found a fall in the endogenous uric acid output under three conditions of nutrition: (1) On a diet of protein and fat of insufficient caloric value, while if most of the fat in this diet were replaced by carbohydrate there was no fall in the output; (2) in starvation during the first few days; and (3) on a diet of carbohydrate and fat. They consider that the cause of the diminution is "the interaction of protein and carbohydrate metabolism."

4. This article by Parkinson and Rowlands should be read by all who swear by strychnine as a cardiac stimulant. A careful study of the action of this drug in fifty cases of severe cardiac failure failed to show any effect whatever on the pulse rate, respiratory rate, blood pressure or general symptoms. The dose was one-fifteenth grain given subcutaneously, and the observations were continued for an hour after a single dose.

5. Sutherland and Paterson describe what they claim to be a new disease of the brain, on the basis of two cases. The symptoms during life were striking, and pointed to complete failure of development of the cerebral cortex, viz., absolute lack of intelligence, sight or hearing, and of sensation. Tonic and clonic spasms were a constant feature, the most frequent position being one of opposthotonos with pleurosthotonos, with the arms flexed and the legs extended. Tachycardia and tachypnea were very marked. At the autopsy there was almost complete aplasia of the cortex, with the exception of the occipital lobes. The vacant space was filled by a large amount of fluid in the pia-arachnoid.

6. Wallis throws new light on that remarkable disease, sulphemoglobinemia. The condition is characterized by cyanosis, often intermittent, headache, weakness and constipation. In methemoglobinemia the symptoms are the same except that there is diarrhea instead of constipation. The diagnosis depends upon the spectroscope examination of the blood, which shows a single band in the red in each of these two conditions. The band due to sulphemoglobin remains after the addition of ammonium sulphide to the blood, while that due to methemoglobin disappears. Wallis found a very strong reducing substance in the blood serum in all his five cases, the nature of which was not determined. Furthermore, the saliva in all contained large amounts of nitrites, and on cultivation yielded constantly a nitroso-bacillus (*i.e.* a bacillus yielding nitrites on cultivation in protein-containing media). A powerful reducing substance was also found in the cultures. [W. T.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT

No. 47. NOVEMBER 25, 1913.

1. *PAYR, E. *The Prophylaxis and Treatment of Peritoneal Adhesions.*
2. PÄSSLER, H. *Are the So-called Diatheses Anomalies of the Constitution?*
3. V. OPENCHOWSKI, T. *The Localization of Gastric Ulcer.*
4. SCHICK, B. *The Diphtheria-toxin Skin Reaction as a Measure for Prophylactic Diphtheria Serum Injections.*
5. FRITSCH. *Roentgen-ray Treatment of Tubercular Glands of the Neck.*
6. LOCH, R. *The Treatment of Scarlet Fever by the Injection of Serum from Convalescent Scarlet Fever Patients.*
7. FUNK, C. *Diet in Treatment from the Point of View of Studies with Vitamin.*
8. *DUNZELT, H. *The Differentiation of White Blood Corpuscles in the Counting Chamber.*
9. HEINZ, R. *Diogenal, a Bromide Containing Derivative of Veronal.*
10. BOAS, H. *Two Cases of Syphilitic Re-infection in Patients Treated by Salvarsan and Mercury Combined. The Results of Such Combined Treatment.*
11. V. BAEYER, H. *The Mechanical Treatment of the Ataxia of Tabes.*
12. BARDACH, K. *The Therapeutic Use of Intravenous Injections of Arthigonin.*
13. BUFE. *Results with Urea Bromin in the Treatment of Alcoholism.*
14. FRANKHAUSER, K. *The Treatment of a Severe Burn by Hot Air Currents.*
15. BACHEM, C. *A Stable Substitute for Tincture of Iodine in Solid Form.*
16. CIMBAL, W. *The Prevention of Poisoning from Hypnotics.*
17. ORLOVIOUS. *A New Flask for the Sterile Withdrawal of Blood for Bacteriological Investigations.*
18. LESCHKE, E. *A Trochar with a Side Opening.*
19. FRIEDRICH. *The Greek Military Hospitals at Saloniki and Athens at the End of the Second Balkan War. (Conclusion.)*
20. NASSAUER, M. *The High School for Physicians and Patients.*

1. Payr reports preliminary observations on the treatment of intestinal disturbances with the electromagnet. Payr has found that reduced iron oxide given in capsules is insoluble in neutral or weakly alkaline solution and is therefore not absorbed from the intestinal canal. In this way the intestines become rendered magnetic and in experimental animals were drawn in the direction of an electro-magnet placed on the abdominal wall. Experimentally, Payr found that the large intestine, stomach, or loops of small intestine could be moved in any desired direction, and that it was possible to break up artificial adhesions induced by iodine. His observations were controlled by x-ray plates. The process was harmless, since the animals showed no toxic manifestations, and as the intestines so treated showed no abdominal histological changes. Identical studies were made on a few patients. The results confirmed those made on animals, but as the technic was not perfected, Payr does not describe them in detail. Payr believes that by magnetizing the intestines in such fashion, much assistance may be derived in the treatment and diagnosis of intestinal adhesions. Future work will determine the value of his preliminary notes.

8. Dunzelt has devised a stain which may be used in an ordinary white blood counter to differentiate the types of leucocytes without coloring the red corpuscles. Its advantages are its simplicity and accuracy of staining. [R. F.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 102. PART 3.

24. *KÖRTE, W. *The Surgical Treatment of Malignant Disease of the Large Intestines (Except the Rectum).*
25. ROTTER, J. *Surgical Treatment of Cancer of the Colon.*
26. *NUNBERG, M. *Clinical Aspect of Epidural Hematoma.*
27. SCHANZ, A. *Treatment of Scoliosis.*
28. BÜDINGER, K. *Plastics on the Curvature in Hourglass Stomach.*
29. ALAPY, H. *Resection of the Knee-joint in Children.*

24. Körte's article is a detailed review of the treatment of cancer of the large intestine. His conclusions are as follows: (1) The particular dangers of resection of the large intestine, *i.e.* collapse and peritonitis, are due at one time to the peculiar anatomical relations of the portion of the intestines, at another time to the difficulty of handling its contents. (2) In acute obstruction it is possible to attain the drainage of the intestine only by means of colostomy; the radical operation must be done later. 3. In chronic obstruction, as well as in case of uncertain nourishment of the intestinal ends, the bringing out and suturing of the loops to the abdominal wall is the safer though slower method. (4) With sufficient drainage, good blood supply and apposition of the ends without tension, primary resection and suture are indicated. (5) The different anatomical relations of each part of the large intestine require correspondingly different operative technic. (6) The likelihood of cure is favorable.

7. Of the palliative operations, enteroanastomosis is the best procedure provided there is no obstruction. In cases with obstruction, colostomy is the best method. Colectomy and enteroanastomosis should be done secondarily to drainage of the intestine.

26. Nunberg, from a study of the cases of intracranial hemorrhage in Kraske's clinic, concludes that epidural hemorrhage can cause death without giving any of the classical symptoms of increased intracranial pressure. Certain other signs appeared, however, among which may be noted motor unrest and disturbance of the oculomotor nerve. He believes that exploratory trephine or puncture should be done more frequently, and that such procedure has been without ill effect in Kraske's clinic. [G. G. S.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 37. SEPTEMBER 11, 1913.

1. *HERING, H. E. *The Pathology of Cardiac Insufficiency.*
2. LAMPE, A. E. *Abderhalden's Test in Phthisis.*
3. FULCI, F. *Power of Regeneration of the Mammalian Thymus.*
4. STRAUSS, H. *Tests of Liver Function.*
5. BUSCHKE, A. *The Relation Between Human and Animal Syphilis.*
6. BECKER, W. H. *Internal Treatment of Exophthalmic Goitre.*
7. DREESEN, H. *Diathermia.*
8. *WOLFF, G. *A Case of Tetanus Neonatorum with Recovery.*
9. SAVINI, E. *Varicella in Adults.*
10. GAUSE, A. *Simple Qualitative and Quantitative Test for Sugar in the Urine by Means of Fermentation.*
11. LOEB, S. *Tests of Light and Color Perception.*
12. PICK, J. *Treatment of Chronic Frontal Sinusitis.*

1. Hering states that cardiac insufficiency comprises not only diminished contractility, but also any other change affecting its function, as, for example, hyperirritability. The early symptoms of cardiac

weakness are largely subjective, and are often overlooked. Irregularity, extra systole and dropped beats are all early symptoms, and denote, besides loss of contractility, less power to generate and transmit impulses. Often these symptoms are accompanied by areas of hypersensitiveness in the skin, as Mackenzie has pointed out. The author speaks of these symptoms as the economic symptoms, and believes that they signify loss of tonus. In syphilitic aortitis, they denote either beginning occlusion of the coronaries or involvement of the aortic cusps. The author lays great emphasis on the importance of searching for these economic symptoms in all cases, and in establishing their presence or absence in the presence of other symptoms of cardiac disease.

9. Wolff's patient was a child nine days old when symptoms first developed. It was given 300 units of tetanus antitoxin during three days. The first dose of serum was injected near the umbilicus, the rest in the abdominal wall, part subcutaneously, part intramuscularly. Chloral, 0.5 gms., was administered by rectum daily for eighteen days. The maximum dose given in one day was 1.5 gms. The child was kept in profound stupor, and was fed through a stomach tube. The author believes that the profound narcosis conserved the child's strength, and allowed the administration of nourishment. After the eighteenth day the chloral was reduced to 0.25 gm. On the twenty-seventh it was omitted and natural feeding begun. [C. H. L., JR.]

No. 38. SEPTEMBER 18, 1913.

1 AND 2. *HIRSCH, C., AND LOEB, O. *Arteriosclerosis.*
3. KAUFFMANN, R., AND POPPER, H. *Paroxysmal Tachycardia.*
4. *MÖLLERS, B. *Etiology of Surgical Tuberculosis.*
5. HAHN, B. *Treatment of Acute Pleural Emphysema.*
6. STEINER, M. *Spontaneous Cure of Echinococcus Cyst of the Lung.*
7. SENGE, J. *Hypophysin.*
8. LANGE, H. *A New Method of Sterilizing Small Quantities of Drinking Water.*
9. NÖRDENLOFT, S. *Endoscopy by Means of a Trocar.*

1 and 2. Hirsch's article is a discussion of the theoretical causes of arteriosclerosis.

Loeb reports the production of arteriosclerosis in dogs; the first time the lesion has been produced in animals other than rabbits. He has demonstrated that lactic acid may be instrumental in producing the condition, a finding of importance in view of the fact that muscular work greatly increases the lactic acid content of the blood. Loeb suggests that this increased production may be combated by avoiding extreme exertion and by dietetic limitation, or that the action of the acid on the arteries may be in some degree neutralized by increasing the ammonia content of the blood.

4. The author has collected 163 cases of tuberculosis of the bones and joints in which careful bacteriological examinations were made. Of these, only 4 cases showed the bovine type of bacillus. In marked contrast are the findings of Frazer, who in 70 cases found 41 of the bovine type, 26 of the human type, and 3 of mixed infection. [C. H. L., JR.]

BULLETINO DELLE SCIENZE MEDICHE.

APRIL, 1913.

1. *BECCARI, L. *The Function of the Sinus and the Automatism of the Frog's Heart.*
2. LOUGO, C. *The Action of Sodium Chloride on Normal and Pathological Kidneys. (To be continued.)*

1. Beccari presents three graphic tracings from experiments on the frog's heart, from which he concludes that the only really automatic centre of cardiac activity is the venous sinus and its ganglliary elements.

Miscellany.

REPORT OF BRITISH ROYAL COMMISSION ON VENEREAL DISEASES.

THE British Royal Commission on Venereal Diseases, which was appointed as a result of the action taken by the International Medical Congress at its meeting in London last August, has recently issued its first official report of its first two meetings on Nov. 7 and 10. Preliminary evidence was given by Dr. Stevenson from the general register office, and statistic evidence by General May as to the prevalence of venereal diseases in the Navy:—

"Dr. Stevenson thought that although the quality of certification generally was improving, there undoubtedly existed a reluctance on the part of medical practitioners to certify venereal diseases as a cause of death, and that consequently the figures contained in the report were minimum figures. He agreed also that there were doubtless many cases of death indirectly due to venereal diseases which are not demonstrated by the tables of the report. At the same time he considered that although the figures do not express the facts, they bear some relation to the facts, and must be regarded as having a distinct comparative value. For instance, he attached importance to figures showing that the death-rate from syphilis in London is four times as high is in the rural districts, and that in descending the scale from the densely populated to the rural districts the death-rate becomes progressively lower.

Dealing with the question of improving certification, Dr. Stevenson strongly advocated a general system of confidential certification under which certificates of the cause of death would not be handed over to the surviving relatives.

"The director-general of the Navy Medical Department gave figures extending over the period from 1905 to 1912. These figures showed evidence of decline both in regard to syphilis and gonorrhea. The figures of the number of cases, and of the number of days lost through sickness for 1912 showed a far more accentuated fall as regards venereal diseases than for any other disease.

"The director-general considered that the reduction in the figures might be due rather to the better education of the sailor in health matters than to the diminution in the prevalence of diseases in the ports. He thought that the men had absolute confidence in their medical officers, and that concealment of the disease was practically non-existent. It is the practice in the navy for medical officers to give lectures on hygiene to the men, and this system was beginning to show very good results, and the admiralty had great hopes of it. With regard to invalidings from the service on account of venereal disease, the director-general thought that the rather sharp fall in

1911, which was disclosed in the tables, should be attributed to improved methods of treatment."

FREE PUBLIC LECTURES ON MEDICAL SUBJECTS.

THE faculty of medicine of Harvard University offers a course of free public lectures, to be given at the medical school, Longwood Avenue, Boston, on Sunday afternoons, beginning Jan. 4, and ending May 10, 1914. The lectures will begin at 4 o'clock and the doors will be closed at five minutes past the hour. No tickets are required. The schedule of lectures is as follows:—

Jan. 4—Dr. W. B. Cannon, Recent studies of the bodily effects of fear and rage.
Jan. 11—Dr. John Lovett Morse, Rational infant feeding.
Jan. 18—Dr. J. E. Goldthwait, The effect of habits of posture upon health.
Jan. 25—Dr. R. B. Greenough, The tumors and diseases of the breast. (To women only.)
Feb. 1—Dr. J. S. Stone, Some surgical diseases of childhood and their causes.
Feb. 8—Dr. A. Coolidge, Jr., Adenoids and tonsils.
Feb. 15—Dr. Charles S. Minot, Microscopical mechanisms of the brain.
Feb. 22—Dr. E. W. Taylor, Some Causes of nervous instability.
March 1—Dr. William P. Cooke, Tooth preservation in children and adults.
March 8—Dr. Charles J. White, Skin nostrums.
March 15—Dr. E. H. Bradford, Chairs, backache and curved spine.
March 22—Dr. Charles H. Williams, Spectacles and eye-glasses. Their use and abuse.
March 29—Dr. E. P. Joslin, Diet in relation to diseases of the kidney.
April 5—Dr. Clarence J. Blake, Aid for the deaf.
April 12—Dr. E. E. Southard, Eugenics versus cacogenics.
April 19—Dr. F. S. Newell, The hygiene of pregnancy. (To women only.)
April 26—Dr. J. Bapst Blake, The diagnosis and immediate treatment of lesser injuries, including the use and abuse of antiseptics.
May 3—Dr. W. H. Smith, Arteriosclerosis.
May 10—Dr. E. H. Nichols, The sexual instinct; its use and abuse. (To men only.)

APPOINTMENTS.

DR. LIVINGSTON FARRAND, professor of anthropology in Columbia University, has been recently elected president of the University of Colorado.

DR. WILLIAM JOSEPH GALLIVAN, of South Boston, chief of the division of child hygiene in the Boston health department, has recently been appointed by the Mayor to the vacancy on the Board of Health left by the resignation, over two years ago, of Dr. Samuel Holmes Durgin.

RECENT DEATHS.

DR. JAMES P. STEDMAN, who died Dec. 24 in Brockton, Mass., was born at Yarmouth, N. S., in 1857. He received the degree of M.D. in 1882 from Boston University Medical School, and since 1892 had practised his profession in Brockton. He was a member of the American Institute of Homeopathy and of the Massachusetts Homeopathic Medical Society. He is survived by his widow, by one daughter, and by one son.

DR. EDGAR MARTINDALE HERMANCE, a prominent physician of Yonkers, N. Y., died from pneumonia on December 22, at the age of 59 years. He was a native of New York City, and was graduated from the College of Physicians and Surgeons in 1878. He had served as commissioner of public safety and as president of the board of health of Yonkers, and at the time of his death was consulting surgeon to St. John's Riverside Hospital and the Westchester County Hospital.

DR. WILLIAM C. BARTRAM, of Newburgh, N. Y., assistant surgeon and radiologist to St. Luke's Hospital in that city, died on December 17 from septicemia resulting from a needle prick received while operating a few weeks previously. He was 34 years old and was graduated from the medical department of Columbia University, New York, in 1904; after which he took a course of post-graduate study in Vienna.

DR. GARY H. WOOD, of Antwerp, N.Y., died from Bright's disease on December 18, at the age of 50 years. He was for some time a member of the Legislature from Jefferson County.

DR. RICHARD G. P. DIEFFENBACH, of Newark, N. J., died from cerebral apoplexy on December 17, at the age of 62. He was attending surgeon to the Newark German Hospital and treasurer of that institution.

SOCIETY NOTICE.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, Jan. 6, 1914, in the amphitheatre of the Peter Bent Brigham Hospital at 8.15 o'clock. The meeting will be conducted by the Historical Club of the Harvard Medical School (Mr. William J. Kerr, secretary).

Papers will be presented as follows:—

Dr. Thomas Ordway, "Hodgkin's Disease." Exhibition of a case.

Dr. L. W. Hackett, "The Medical Side of Benjamin Franklin."

Dr. E. E. Southard, "Some Neuropathological Worthies."

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

BOOKS AND PAMPHLETS RECEIVED.

Northwestern University Bulletin. Medical School Announcement, 1913-1914. Chicago, Ill.

A Model State Law for Morbidity Reports. Reprint No. 133, from Public Health Reports. Washington, D. C.

Fumigation of Vessels for the Destruction of Rats. Reprint No. 132 from Public Health Reports, Washington, D. C.

Coprostasis by Sir James Sawyer. Cornish Bros., Birmingham. 1912.

Proceedings of the Pathological Society of Philadelphia. New Series Vol. xv, Old Series Vol. xxxiii. Philadelphia. 1913.

The Impossibility of Differentiation between Monkey Blood and Human Blood by Means of Antisera Derived from Monkeys, by Hugh K. Berkeley. Reprint.

Protein-Split Products in Relation to Immunity and Disease, by Victor C. Vaughan, M.D., Victor C. Vaughan, Jr., and J. Walter Vaughan, M.D. Lea & Febiger. 1913.

Principles and Practice of Gynecology, by E. C. Dudley, A.M., M.D. Sixth Edition. Lea & Febiger. 1913.

Original Articles.

THE EFFECT OF DIGITALIS ON THE BLOOD PRESSURE AND PULSE PRESSURE IN THE PRESENCE OF CARDIAC DECOMPENSATION.

BY CHARLES H. LAWRENCE, M.D., BOSTON,

Assistant Visiting Physician, Massachusetts General Hospital; Assistant in Clinical Medicine, Harvard Medical School.

From the West Medical Service, Massachusetts General Hospital, Dr. Richard C. Cabot, Chief of Service.

IN the majority of writings upon digitalis, it is stated that one effect of the drug is to raise the systemic blood pressure[1] and that for this reason its use is contraindicated in those conditions in which an increase of circulatory tension might give rise to unfortunate results. Thus Allbut,[2] writing in a recent system of treatment, states that, "In angina pectoris digitalis and its kind are for obvious reasons to be eschewed." Likewise, it is the opinion of a large number of writers that in the hypertension of arteriosclerosis and chronic nephritis there exists a strong contraindication to the administration of the most efficient cardiac tonic known. As a result of this teaching, digitalis is not administered in many cases of cardiac decompensation because there is a co-existing arteriosclerosis, hypertension, or angina pectoris.

It is an undoubted fact that digitalis does raise the blood pressure in animals.[3] There is reason to believe that it has the same effect when administered to healthy individuals. The basis for this belief is found in the recent work of Marvin,[4] who administered tincture of digitalis to a series of medical students. He found that a single dose of the drug (14 minims) caused no rise in pressure for an hour and twenty minutes after its administration, but that there was a marked rise later, reaching its maximum in five hours, and reaching normal by a gradual fall occupying fifty hours.

It is upon the basis of this work on animals and normal individuals that the conclusion has been reached that digitalis causes a rise in blood pressure when administered to individuals suffering from cardiac decompensation. Such observations, however, as have been reported on this question seem to show that this is not the case. Price[5] made observations on the systolic pressure of twenty-one patients who were receiving therapeutic doses of digitalis, and noted a rise in pressure in only one instance. He concludes from his work that "judged by the methods in use for observing the blood pressure clinically, the internal administration of digitalis does not raise the blood pressure in man by constricting the peripheral arteries." Of a similar tenor are Mackenzie's conclusions.[6] "Contrary to expectations," he found a rise in pressure following the administration of digitalis "only in exceptional cases," even though he repeatedly pushed the dose until distinct evidence of its physiological action was produced. "Even when the patient was greatly benefited by the drug," says Mackenzie, "I have frequently seen little or no evidence of a rise in blood pressure."

It is the purpose of this paper to contribute to our knowledge of the effect of digitalis when administered to patients with cardiac decompensation from various causes. Observations are reported on twenty-five cases taken at random from the records of the Massachusetts General Hospital. In the majority of cases these readings were made by the house officers in the routine treatment of the case, and without special reference to the effect of digitalis. In five cases, observations were made twice daily by the writer. Both systolic and diastolic pressure were recorded. The cases include valvular cardiac disease, arteriosclerosis with myocardial degeneration, angina pectoris, and chronic nephritis with hypertension. All the patients had more or less cardiac decompensation, as shown by the presence of one or more of the classical symptoms of that condition. The digitalis was administered in the form of digipuratum in all but a few cases. These received an active tincture. The accompanying table gives a brief description of each case, together with the average blood pressure readings before, during, and immediately after the use of the drug; also at discharge from the hospital. The presence or absence of diuresis, and the other effects of treatment, are also noted.

CASE 1. Male, 57 years. Arteriosclerosis. Marked edema of feet and legs. Urine at entrance, ℥50. Given digipuratum, two tablets daily for six days. Blood pressure: before digitalis, S. 185, D. 110; tafer digitalis, S. 190, D. 120; at discharge, S. 200, D. 120. No diuresis from digitalis, discharged relieved.

CASE 2. Male, 49 years. Syphilitic aortitis, Hypertrophy and dilatation of heart, infarct of lung. Shifting dullness in abdomen, marked edema of feet, legs and thighs. Urine at entrance, ℥50. Given digipuratum, nine tablets in four days. Urine rose to ℥65 the fourth day. Blood pressure: before digitalis, S. 200, D. 95; after digitalis, S. 180, D. 85. Discharged relieved.

CASE 3. Female, 45 years. Acute bronchitis, chronic endocarditis of mitral and aortic valves. Slight edema of ankles and shins. Urine at entrance, ℥40. Given digipuratum, two tablets daily for three days, then one tablet daily for four days. Urine rose to ℥70 on fourth day. Blood pressure: before digitalis, S. 145, D. 85; after digitalis, S. 115, D. 75. Discharged relieved.

CASE 4. Male, 26 years. Acute vegetative endocarditis, chronic endocarditis, streptococcus infection of kidneys, syphilis. No edema. Urine at entrance, ℥35. Digipuratum, three tablets daily for seven days. No diuresis. Blood pressure: before

digitalis, S. 140, D. 55; after digitalis, S. 170, D. 50. Discharged not relieved.

CASE 5. Male, 58 years. Syphilis, myocardial weakness, arteriosclerosis, hypertrophy and dilatation of heart. Edema of lungs, liver and legs. Urine at entrance, ℥16. Digipuratum, three tablets daily for nine days. Urine rose to ℥40 on the third day. Blood pressure: before digitalis, S. 175, D. 130; after digitalis, S. 170, D. 110; at discharge, S. 150, D. 95. Discharged relieved.

CASE 6. Male, 60 years. Myocardial weakness. Marked edema of thighs and legs, edema of lungs. Urine at entrance, ℥12 (?). Digipuratum, four tablets daily for four days, then three tablets daily for three days. Urine rose to ℥58 on the fifth day. Blood pressure: before digitalis, S. 180, D. 90; after digitalis, S. 170, D. 90; at discharge, S. 150, D. 90. Discharged relieved.

CASE 7. Male, 67 years. Arteriosclerosis, coronary sclerosis, angina pectoris, hypertrophy and dilatation of heart, terminal pericarditis. No edema. Urine at entrance, ℥35. Digipuratum, three tablets daily for five days, then one tablet daily for eight days. No diuresis. Blood pressure: before digitalis, S. 160, D. 115; after digitalis, S. 160, D. 110; at discharge, S. 160, D. 110. Discharged dead.

CASE 8. Male, 64 years. Syphilitic aortitis, aortic regurgitation. Trifling edema of ankles. Urine at entrance, ℥40. Digipuratum, three tablets in 24 hours. Urine rose to ℥60 on the third day. Blood pressure: before digitalis, S. 150, D. 60; after digitalis, S. 130, D. 45. Discharged relieved.

CASE 9. Male, 53 years. Chronic nephritis, myocardial insufficiency, anasarca. Marked edema of legs, abdominal wall, back and lower part of chest. Urine at entrance, ℥40. Digipuratum, two tablets daily for six days. Urine rose to ℥75 on the fourth day. Blood pressure: before digitalis, S. 200, D. 110; after digitalis, S. 170, D. 95; at discharge, S. 170, D. 100. Discharged relieved.

CASE 10. Male, 53 years. Aortic stenosis and regurgitation, adhesive pericarditis, arteriosclerosis. Marked soft edema of legs. Urine at entrance, ℥50. Digipuratum, three tablets daily for 14 days. No diuresis. Blood pressure: at entrance, S. 160, D. 60; after digitalis, S. 130, D. 50. Discharged dead.

CASE 11. Female, 40 years. Mitral stenosis and regurgitation, auricular fibrillation. Slight edema of lungs, shins and ankles. Urine at entrance, ℥15. Digipuratum, two tablets daily for 11 days. Urinary output thought increased, exact measurement impossible. Blood pressure: at entrance, S. 150, D. 105; after digitalis, S. 120, D. 80. Discharged relieved.

CASE 12. Female, 46 years. Mitral and aortic stenosis and regurgitation, stasis. Left hydrothorax, marked edema of legs and back. Urine at entrance, ℥35. Digipuratum, 11 tablets in five days. No diuresis. Blood pressure: at entrance, S. 130, D. ? twice later during and after digitalis, S. 130, D.? Discharged dead.

CASE 13. Female, 41 years. Mitral stenosis. Slight edema of shins. Urine lost. Digipuratum, two tablets daily for five days. Tincture, m. 10 every six hours for four days. Blood pressure: at entrance, S. 100, D. 80; after digitalis, S. 120, D. 80; at discharge, S. 120, D. 80.

CASE 14. Male, 37 years. Myocardial disease. Double hydrothorax, marked edema of legs. Urine at entrance, ℥40. Digipuratum, two tablets daily for five days, one tablet daily for four days. No diuresis. Blood pressure: at entrance, S. 125, D. 100; after digitalis, S. 110, D. 90; 48 hours after digitalis was omitted, S. 120, D. 100. Discharged dead.

CASE 15. Male, 52 years. Chronic glomerulo nephritis. Slight edema of lungs, ankles and shins. Urine at entrance, ℥35. Digipuratum, two tablets daily for five days, one tablet daily for seven days. No marked diuresis, slight permanent increase in urinary output. Blood pressure: at entrance, S. 195, D. 120; four days after beginning digitalis, S. 180, D. 120; at discharge (digitalis previously omitted), S. 200, D. 120. Discharged relieved.

CASE 16. Male, 43 years. Aortic and mitral disease, broken cardiac compensation. Edema of lungs, legs, and sacrum. Urine at entrance, ℥50. Digipuratum, one tablet daily for six days. No diuresis. Blood pressure: at entrance, S. 125, D. 70; after digitalis, S. 140, D. 50; at discharge, S. 140, D. 50. Discharged relieved.

CASE 17. Male, 54 years. Myocardial weakness, broken cardiac compensation. Edema of lungs and legs. Urine at entrance, ℥45. Digipuratum, two tablets daily for nine days. No diuresis. Blood pressure: at entrance, S. 115, D. 85, after digitalis, S. 115, D. 80; at discharge, S. 125, D. 90. Discharged relieved.

CASE 18. Male, 25 years. Malignant endocarditis. Slight edema of lungs. Urine at entrance ℥15. Digipuratum, two tablets daily for three days. Urine rose to ℥60 on the third day. Blood pressure: at entrance, S. 130, D. 20; after digitalis, S. 130, D. 20; eight days later S. 115, D. 50. Discharged dead.

CASE 19. Male, 47 years. Myocardial weakness, hypertrophy and dilatation of heart, chronic nephritis, uremia. Edema of lungs and ankles. Urine at entrance, ℥25. Digipuratum, three tablets daily for six days. No marked diuresis, but gradual increase of urinary output. Blood pressure: before digitalis, (four readings during seven days), S. 150, D. 120. During and immediately after digitalis, (three readings), S. 125, D. 90. Discharged unrelieved.

CASE 20. Male, 57 years. Arteriosclerosis, myocardial weakness. Ascites, edema of legs and abdominal wall. Urine at entrance, ℥45. Digipuratum, 2 tablets daily for 21 days. Passed ℥200 of urine five days after digitalis was begun. Blood pressure as follows:

Before digitalis, S. 180, D. 125.
48 hours after digitalis was begun, S. 180, D. 95.
96 hours after digitalis was begun, S. 170, D. 80.
7 days after digitalis was begun, S. 175, D. 90.
9 days after digitalis was begun, S. 180, D. 80.
12 days after digitalis was begun, S. 170, D. 90.

20 days after digitalis was begun, S. 185, D. 100. Discharged relieved.

CASE 21. Male, 48 years. Arteriosclerosis, hypertrophy and dilatation of heart, specific aortitis, pericardial adhesions. Edema of lungs, liver, lower legs. Urine at entrance, ʒ35. Digipuratum, 12 tablets in four days. Urine rose to ʒ70 on the fourth day. Blood pressure: at entrance, S. 190, D. 130; after digitalis S. 150, D. 80; at discharge, S. 120, D. 70. Discharged relieved.

CASE 22. Male, 60. Arteriosclerosis, hypertrophy and dilatation of the heart right hydrothorax, moderate edema of lower legs and thighs. Urine at entrance, ʒ35. Digipuratum, average dose for 13 days, three tablets daily. Urine rose to ʒ50 on the sixth day. Digitalis heart block produced. Blood pressure: at entrance, S. 130, D. 90.
24 hours after digitalis was begun, S. 130, D. 80.
48 hours after digitalis was begun, S. 130, D. 80.
9 days after digitalis was begun, S. 120, D. 75.
During period of heart block, S. 140, D. 85.
Discharged relieved.

CASE 23. Female, 11 years. Chronic endocarditis, double mitral disease. Soft edema of both shins. Urine at entrance, ʒ35. Tincture of digitalis, m. 10 t. i. d. for seven days. Urine rose to ʒ70 on the fourth day. Blood pressure, at entrance, S. 100, D. 70; after digitalis, S. 95, D. 60, at discharge, 10 days after digitalis was omitted, S. 100, D. 75. Discharged relieved.

CASE 24. Female, 34 years. Chronic endocarditis, double mitral disease. Urine at entrance, ʒ30. Digipuratum, s. c. two ampules daily for 20 days. No diuresis. Blood pressure: at entrance, S. 95, D. 80. Six days later, S. 95, D. 65. Fifteen days later, S. 95, D. 60. Discharged relieved.

CASE 25. Male, 28 Chronic glomerulo nephritis, hypertrophy and dilatation of the heart, albuminuric retinitis. Marked edema of lungs, liver, legs and thighs. Urine at entrance ʒ30. Digipuratum, two tablets daily for seven days. Urine rose sharply to ʒ60 on fourth day. Blood pressure: at entrance, S. 180, D. 120; after digitalis, S. 160, D. 100; ten days after digitalis was omitted, S. 170, D. 100. Discharged dead six weeks after last reading recorded here.

CASE 26. Male, 32 years. Chronic glomerulo nephritis, hypertrophy and dilatation of the heart, marked edema of feet, legs and thighs. Urine at entrance, ʒ60. Digipuratum, one tablet t. i. d. for six days. Slight diuresis. Blood pressure: at entrance, S. 170, D. 130; after digitalis S. 140, D. 100; at discharge S. 140, D. 90. Discharged much relieved.

SUMMARY OF CASES.

Case.	Age.	Diagnosis	Blood Pressure. Before Digitalis.	After Digitalis.	Diuresis.*	Remarks.
1	57	Arteriosclerosis	S. 185 D. 110	S. 200 D. 120	None	
2	49	Syphilitic aortitis	S. 200 D. 95	S. 180 D. 85	30%	
3	45	Chronic endocarditis	S. 145 D. 85	S. 115 D. 75	75%	
4	26	Ac. and chr. endocarditis Syphilis	S. 140 D. 55	S. 170 D. 50	None	Streptococcus infection of kidneys developed.
5.	58	Syphilis Myocardial weakness	S. 175 D. 130	S. 170 D. 110	100%+	Pressure at discharge, S. 150, D. 95.
6	60	Myocardial weakness	S. 180 D. 90	S. 170 D. 90	400%—	Pressure at discharge, S. 150, D. 90.
7	67	Arteriosclerosis Angina pectoris	S. 160 D. 115	S. 160 D. 110	None	Some relief from anginal attacks.
8.	64	Syphilitic aortitis	S. 150 D. 60	S. 130 D. 45	50%	
9	53	Chr. nephritis Myocardial insufficiency	S. 200 D. 110	S. 170 D. 100	90%	
10	53	Aortic stenosis and regurgitation Adhesive pericarditis	S. 160 D. 60	S. 130 D. 50	None	
11	40	Mitral stenosis and regurgitation	S. 150 D. 105	S. 120 D. 80	Urine increased, exact amount not known.	Auricular fibrillation.
12	46	Mitral and aortic stenosis and regurgitation	S. 130 D. ?	S. 130 D. ?	None	

SUMMARY OF CASES.

Case.	Age.	Diagnosis.	Blood Pressure. Before Digitalis.	After Digitalis.	Diuresis.*	Remarks.
13	41	Mitral stenosis	S. 100 D. 80	S. 120 D. 80	Urine lost	
14	37	Myocardial disease	S. 125 D. 100	S. 110 D. 90	None	Died
15	52	Chronic nephritis	S. 195 D. 120	S. 180 D. 120	No marked diuresis, slight permanent increase.	
16	43	Aortic and mitral disease	S. 125 D. 70	S. 140 D. 50	None.	
17	54	Myocardial weakness	S. 115 D. 85	S. 115 D. 80	None	
18	25	Malignant endocarditis	S. 130 D. 20	S. 130 D. 20	300%	Died
19	47	Myocardial weakness Chronic nephritis	S. 150 D. 120	S. 125 D. 90	Slight	
20	57	Arteriosclerosis Myocardial weakness	S. 180 D. 125	S. 170 D. 80	300%	Passed 3200 of urine on the fifth day of digitalis.
21	48	Arteriosclerosis Syphilitic aortitis	S. 190 D. 130	S. 150 D. 80	100%	
22	60	Arteriosclerosis	S. 130 D. 90	S. 130 D. 80	35%	Heart block produced.
23	11	Chronic endocarditis	S. 100 D. 70	S. 95 D. 60	100%	
24	34	Chronic endocarditis	S. 95 D. 80	S. 95 D. 65	None	
25	28	Chronic nephritis	S. 180 D. 120	S. 160 D. 100	100%	
26	32	Chronic nephritis	S. 170 D. 130	S. 140 D. 100	Slight	

*The percentage figures in the diuresis column represent the relation of the increase in urinary output to that before digitalis was administered.

Of the 26 cases recorded, 5, or 19%, showed a rise in systolic pressure, the greatest increase noted being 30 m.m. in Case 4. There was present in this case an acute infection, involving the heart and kidneys. Of the group of cases showing a rise in systolic pressure, none showed a diuresis.

Four cases, or 15%, showed no change in systolic pressure. Of these, none showed a diuresis.

Seventeen cases, or 66%, showed a fall in systolic pressure either during or immediately after the administration of digitalis preparations. Of these, 88% showed a diuresis.

Only one case showed a rise in diastolic pressure. There was no diuresis.

Four cases, or 15%, showed no change in diastolic pressure. Of these, 75% showed a diuresis.

Twenty cases, or 74%, showed a fall in diastolic pressure, 63% of these showing a diuresis.

Twelve cases, or 45%, showed an increased pulse pressure, a diuresis occurring in 50% of this group.

Three cases, or 11%, showed no change in pulse pressure. A diuresis occurred in every case in this group.

Eleven cases, or 42%, showed decreased pulse pressure. A diuresis appeared in 81%.

From these figures it appears that in the presence of cardiac decompensation digitalis preparations cause, as a rule, a fall in blood pressure, which is usually associated with an increased urinary output. An increased systolic pressure occurs in a small number of cases, and is not associated with a diuresis. It would appear, therefore, that conditions in which an increased systolic pressure might produce untoward results do not constitute a contraindication to the administration of digitalis, if cardiac decompensation indicates its administration. Such conditions include arteriosclerosis, angina pectoris, and nephritic hypertension. The effect of digitalis on the diastolic pressure is similar to that on the systolic, but as the writer has pointed out in a previous paper,[7] changes in

diastolic pressure are usually of less amplitude than those observed in systolic pressure. For this reason a fall in systolic pressure usually means a diminished pulse pressure. Such a diminished pulse pressure does not necessarily mean a decreased efficiency of the circulation, if the ratio of pulse pressure to maximum pressure is increased. Indeed, such a change may coincide with an increased efficiency of the circulation, as is shown by the fact that in 81% of the cases showing a decreased pulse pressure there occurred a diuresis.

Of the 26 cases studied, 18 were discharged relieved. Of these, 76% showed a fall in systolic, and 86% showed a fall in diastolic pressure during or immediately after the administration of digitalis. It appears, therefore, that such a fall is entirely compatible with improvement in the patient's condition. Two cases were discharged unrelieved, and six cases died. No conclusions can be drawn from this last small group of observations, especially as the changes in blood pressure noted were about evenly divided as to increased or diminished readings.

CONCLUSIONS.

1. The effects of various drugs on the blood pressure, as determined by experiments on animals, do not furnish reliable criteria for the administration of such drugs to man, since the effect may be quite different in the latter.

2. The pressure-raising effect of digitalis noted in animals and in healthy individuals does not occur, as a rule, when the drug is administered to individuals suffering from cardiac decompensation.

3. The cause of the cardiac decompensation does not appear to affect the action of the drug.

4. Digitalis preparations may be safely administered to patients suffering from arteriosclerosis, angina pectoris, or nephritic hypertension, if cardiac decompensation is present; under such conditions it rarely causes a rise in blood pressure.

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Report from Centralia, Pa., on Dec. 30, states that Mrs. Mary Horn, who died lately in that city, was locally reputed to be 107 years of age. She is said to have been born in 1806.

RECTAL ALIMENTATION.*

BY HARRY W. GOODALL, M.D., BOSTON.

RECENT investigations of the physiology of the alimentary tract have explained in a large measure why food materials introduced by the rectum fail to satisfy the needs of the body as they do when administered by mouth. At the same time sufficient evidence regarding the ability of the large intestine to absorb nutritive materials has accumulated to stimulate renewed efforts in this direction, with results that are encouraging and promise to be of some practical value.

Inasmuch as there can be no question as to the value of successful rectal alimentation the subject is worthy of a complete review.

PHYSIOLOGY OF DIGESTION AND ABSORPTION.

Digestion and absorption occur chiefly in the small intestine. It is now an established fact that foodstuffs must be disintegrated into comparatively simple fragments before they can be absorbed. Proteins are absorbed as amino-acids, carbohydrates as monosaccharide sugars, fats as soaps, fatty acids, and probably as emulsified fats. One of the chief causes of the failure of earlier attempts at rectal feeding was the fact that the food was not presented in an absorbable form and that the large intestine contains no digestive ferments.

The more recent experiments have had to do with the introduction of compounds which do not require digestion for their absorption. The belief that the body could be nourished under these conditions was encouraged by the experimental proof that amino-acids, simple sugars, fatty acids, glycerol and inorganic salts are built up with apparent ease into living tissue when fed to animals, that not only is excellent nutritive equilibrium maintained, but that animals even gain weight. Work along this line, however, has shown that the problem is not a simple one. While the mucous membrane of the entire alimentary tract from the mouth to the anus is an absorbing surface, and while osmosis and diffusion play a part in the process of absorption, of far greater consequence is the selective activity of specialized epithelial cells which are found only in a portion of the alimentary tract, chiefly in the small intestines. In general it may be said that osmosis and diffusion play a more important part in the absorption of water and salts, while the selective action of the cells is chiefly concerned in the absorption of organic material. Again the path of absorption is not the same for all substances which are absorbed: fats are taken up by the lymphatics, while practically all other substances are absorbed by the blood vessels.

* Read at the quarterly meeting of the Staff of the Boston Dispensary, October 3, 1913.

With these facts in mind the physiological problems of the large intestine may be considered.

NORMAL PHYSIOLOGICAL FUNCTIONS OF THE LARGE INTESTINE.

As an Excretory Organ. The work performed by the large intestine is chiefly excretory. For besides the fact that the digestive residue remains in this part of the alimentary tract for twenty-two hours and is then excreted, the walls of the large intestine play an important part in the excretion of lime, magnesium, iron and phosphates. Furthermore, it is the main channel of excretion for certain substances which are not normal food constituents, such as bismuth and mercury, and it is probable that ulcerations in the large intestine may be due to this excretory function. This is certainly so in the case of mercury.

As a Digestive Organ. Normally the large intestine plays a very minor part in digestion. Solitary glands and follicles of Lieberkuh have been demonstrated, but for the most part the mucous membrane shows the typical goblet cells which secrete mucus. The presence of any digestive ferments is very doubtful and would be unnecessary since absorption is very complete in the small intestine. Digestion may, however, occur in this region provided digestion is not complete in the small intestine as some of the enzymes secreted in the small intestine may pass along with the bowel content. Furthermore, carbohydrates and proteins, if present, are attacked and disintegrated by the bacteria normally present in the large gut.

As an Absorbing Organ. As an absorbing organ it is of little importance, as might be expected in the absence of villi and valvulae conniventes. Normally no absorption of food material worth mentioning takes place. It has been estimated that about 500 c.c. of water pass the ileo-cecal valve in twenty-four hours, and of this about 400 c.c. are absorbed.

In considering the results of animal experimentation it must be borne in mind that with dogs and some other animals absorption is never completed in the small intestine, but continues in the large intestine, carbohydrates and fats being absorbed more rapidly than protein.

EXPERIMENTAL ABSORPTION FROM LARGE INTESTINE.

From the accumulated evidence it may be briefly stated that water and salts are rapidly taken up by the large bowel. Amino-acids and monosaccharide sugars are absorbed much more slowly than they are from the small intestine, but yet promptly enough to permit of the introduction of sufficient quantities for nutritional requirements. Fats are absorbed too slowly to be of value. Alcohol is readily absorbed.

Unfortunately, certain difficulties arise when an attempt is made to apply this experimental knowledge to actual practice. Exact experimental work with such amino-acids as glycocoll and alanine has been successfully made, but aside from the fact that the preparation of these bodies is difficult and expensive, our knowledge as to the particular kinds and the proportions of these bodies requisite for nutrition is as yet very fragmentary. Attempts have been made to overcome this lack of knowledge by predigesting proteins with pancreatic extract and by introducing pancreatic extract with the nutrient enemata, but the limitations of this artificial digestion and the irritation resulting from bacterial decomposition make such attempts impractical. Hence, for practical purposes at the present time, the only rational enemata would consist of water, salts, simple carbohydrates and alcohol.

RECTAL ALIMENTATION.

The introduction of enemata constitutes an abnormal occurrence and new conditions arise, which in the main are irritative in character and which necessarily modify the rate and ease of absorption of the substance introduced.

First of all enemata not only simulate normal peristalsis, but anti-peristaltic waves are always set in motion. With small enemata the injected material is seldom carried beyond the ileo-cecal valve, but with large injections it may be carried to the small intestine and even to the stomach. If the material is carried to the small intestine it is promptly absorbed, but in practice one can place no dependence upon this occurrence.

Aside from the mechanical irritation caused by enemata, a thing which in itself often makes repeated injection impossible, the material itself may act as a chemical irritant. This may result from the osmotic action of the material injected, and this is especially true if concentrated solutions are injected, or the reaction of the solution may be such as to irritate, or the chemical changes resulting from bacterial action may cause the formation of acids, gases, etc., which are irritative.

This not only makes it more difficult to retain the enema for the long period of time (at least one hour) necessary for absorption but it may actually prevent absorption, as the mucous membrane of the entire alimentary tract is capable of exercising a protective function whereby it inhibits or prevents the absorption of irritative or poisoning substances.

Sugar Enemata. Most investigations have been made with dextrose in solutions varying between 3% and 16%. Usually there is resulting irritation, especially with the more concentrated solutions, and if 16% is exceeded diarrhea always results. An isotonic 5.4% solution is said to be less irritating, and pure dextrose is preferable to commercial glucose. Better results

are in any case obtained by beginning with the weaker solutions and gradually increasing.

Experiments made with enemata of 500 c.c. volume retained five hours, followed by a rest of one hour, showed that with 3% dextrose solution from 42 gm. to 52 gm. dextrose were absorbed. With 10% solutions 157 gm. to 163 gm. dextrose were absorbed, and with 15% solutions 144 to 193 gm. dextrose were absorbed in twenty-four hours. The amount of sugar destroyed by bacteria under these conditions has been shown to vary between 0.5% and 1%, and is therefore negligible. These results have been confirmed, and it seems possible to provide in this manner about one-third of the total number of calories required to maintain the body while at rest with dextrose enemata.

Alcohol Enemata. Alcohol is probably absorbed more readily than dextrose when given in concentration between 5% and 10%. Owing to its high caloric value it would be very desirable in certain cases. Like dextrose, it is irritating, but it is less so in the weaker solutions than in the stronger. Absolute alcohol is the best form to use. When added to a dextrose enemata it apparently does not increase the irritation and greatly increases the fuel value of the enema.

It has been shown clinically that enemata of the following proportion, yielding 555 calories, are practically completely absorbed in eight hours.

Dextrose	50 grams
Absolute alcohol	50 grams
Water	1000 c.c.

If larger enemata with the same proportions are given, or if the concentration of enemata of this volume are increased, then absorption is not complete.

Water and Salt Enemata. It has been repeatedly shown that water is rapidly absorbed from the large bowel. Likewise experiments have shown that salt is absorbed from the rectum quantitatively almost as completely as in the case of oral administration. Clinical experience has agreed with these findings and it is only necessary to add that in any case where a salt poor diet is indicated salt enemata should not be employed.

Indication for Nutrient Enemata. At present, alcohol and simple sugars are the only practical nutrient materials available for rectal alimentation, and their successful administration would be of the greatest value in any acute case, medical or surgical, in persons that would suffer from the effects of temporary withdrawal of food and in subacute or chronic cases in which nourishment by mouth is impossible or inadvisable. Clinical experience, however, teaches that the resulting irritation and exertion often make their employment inadvisable. This is especially true in cases associated with emaciation and general weakness, inasmuch as marked discomfort, distress, and exhaustion may accompany the retention of the sugar enemata. Disregarding the introduction of drugs by rectum there are certain cases in which the prompt introduction of dextrose may be of distinct therapeutic value, and if for any reason it cannot be taken by mouth, enemata may be employed.

These cases may be classified as follows:—

1. Simple exhaustion from any cause where recovery is doubtful, as exposure to cold, starvation, etc.

2. In some acute infections during critical periods, based upon the present theory that sugar is important for febrile conditions and that the heart muscle is augmented by dextrose, especially advised in septic conditions.

3. As an antidote for certain poisons, as chloroform, alcohol, or some other poisons which cause fatty livers, since it has been shown experimentally that the fatty changes can be prevented by giving sufficient quantities of glycogen forming material. In the case of phosphorous poisoning dextrose fails, but levulose is said to be efficient.

4. In diabetic acidosis and in acetonuria from any cause.

In any of these cases, however, if the demand for sugar is urgent it is promptly and more satisfactorily supplied by subcutaneous or intravenous injections. Isotonic 5.4% solutions injected under the skin of the thighs can be given with impunity and considerable quantities of 10% solutions have been given to human beings without harm and with practically no local discomfort.

Given intravenously, a dose of ½ gm. dextrose per kilo is sufficient for its tonic effect and ordinarily the dose should never exceed 1 gm. per kilo. It may be given in concentration varying between 3% and 10% without harm, but the injection should be given very slowly, drop by drop if possible, inasmuch as more sugar can be taken without the occurrence of glycosuria and without harm if this caution is observed. The purest dextrose obtainable should be used, dissolved in water, plain saline or, preferably, Ringer loche solution.

The following solution is advised in children and very weak adults:—

Dextrose	55.0 grams
KCl.	0.2 grams
$CaCl_2$	0.2 grams
$NaHCO_3$	0.1 grams
Aq. Dest. qr.	1000.0 c.c.

Dextrose Enemata in the Treatment of Diabetic Acidosis. It has been stated that diabetics tolerate sugar better by rectum than by mouth. Experiments in which the sugar is absorbed by the hemorrhoidal vessels, thus avoiding the liver, show fairly rapid absorption without glycosuria. Likewise, it has been claimed that the injection of isotonic 5.4% solution of dextrose into the general circulation is better tolerated than when

an equal amount is injected into the portal vein. Equally competent observers doubt the accuracy of these conclusions, believing that the explanation lies in the slow absorption of the sugar and not in the avoidance of the portal circulation. Without further experimental evidence it cannot be concluded that the greater part of sugar enemata does avoid the liver or that sugar is better tolerated when thus introduced by rectum. Clinical experience has failed to yield any positive evidence on this point. It is reported on the one hand that with the same quantity of sugar given by rectum as by mouth, the acidosis subsides and the glycosuria diminishes; on the other hand, cases are reported in which the glycosuria is not favorably influenced, and in certain instances a marked acidosis has developed when sugar by mouth was withdrawn and the same quantity given by rectum.

OTHER FACTS REGARDING ENEMATA.

Dextrine is said to be preferable to dextrose, as it irritates the rectum less. Its ultimate absorption compares favorably with dextrose, although more time is required. Inasmuch as infant foods consist largely of dextrin it is more easily obtainable.

Much has been said regarding the advisability of the drop method in giving enemata, but the preference of the patient must be always taken into consideration. Absorption is slower by the drop method, consequently this method is preferable in cases of diabetes.

Whenever repeated enemata are given it is essential to note with accuracy the quantity of fluid injected. This is especially true in unconscious or collapsed or extremely debilitated persons, since in such cases it may happen that absorption is retarded or fails altogether, with the result that the fluid finds its way into the small intestine and stomach, and if large quantities are injected these organs may become distended, giving rise to urgent symptoms.

The addition of ten drops of tincture of opium to the enemata may allay the mechanical irritation somewhat and does not delay absorption to any degree.

It has been claimed that nutritive enemata cause a reflex secretion of gastric juice which contra-indicates their employment in cases of gastric ulcer. Experimentally a flow of gastric juice of a half hour's duration has been shown to follow enemata. This corresponds to the period of psychic secretion; consequently it is attributed to the desire for food rather than to a reflex from the rectum. No secondary secretion of gastric juice has been noted.

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A STUDY OF LEUKEMIA.*

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LEUKEMIA is ordinarily defined as a disease characterized by an enormous increase in the number of leucocytes in the circulating blood. Some of the familiar facts concerning the disease are as follows:—

Its course may be chronic, lasting from six months to several years; or acute, from a few weeks to six months. The termination is invariably fatal. The chronic cases are much the more common, and the diagnosis is readily made. The acute cases, on the other hand, although at present they are much more often recognized than they formerly were, are comparatively rare. They are characterized by severe anemia, weakness and a tendency to hemorrhage.

An interesting feature of acute leukemia is that the patients often present some evidence of infiltration of the normal tissues outside the blood vessels by the white cells from the circulating blood. These "leukemic infiltrations," so-called, may be demonstrable only on microscopical examination of the various organs, or they may be sufficiently prominent to be easily recognized as definite tumors. Sometimes they are large and numerous enough to be the most striking clinical feature of the case. Many of these tumors are on section of a definite green or greenish color, and to such the name "chloroma" has been applied. The relation of chloroma to the leukemic process has been but recently demonstrated.

* Received for publication, November 5, 1913.

In dealing with a case of leukemia, the practitioner ordinarily classifies it as either myelogenous or lymphatic in type, according as he finds granular or non-granular mononuclear cells predominating in the blood picture. Some cases in which the cells appear to be more or less equally divided between these two types, and in which many cells are rather indeterminate in character, are called "mixed-cell leukemia." These have been regarded as evidence that the myelogenous and the lymphatic types of leukemia are by no means separate entities, but that the leukemic process represents a disease of all the hematopoietic tissues.

What may be considered as the opposite to this view, is the idea that there are two definite and separate diseases, viz.—lymphatic and myelogenous leukemia. This conception is founded on the view that the lymphocyte and myelocyte are not so closely related in origin as is ordinarily supposed, but arise in definitely different regions, viz., the lymphoid tissue of the lymph nodes, alimentary tract and spleen in the case of the lymphocyte, and the red bone marrow in the case of the myelocyte.

The microscopical examination of the material from a large number of autopsies, inclines the writer strongly to this idea of the separateness of lymphoid and myeloid tissues. The chief cause for confusion seems to be the fact that the undifferentiated cells of both types are large and pale staining, with vesicular nuclei, and are absolutely indistinguishable one from the other by ordinary methods. The myeloblasts, as Naegeli has named the undifferentiated bone marrow cells, are, therefore, often called "bone marrow lymphocytes." When in the course of a myelogenous leukemia such cells appear in the blood, the picture naturally appears "mixed." When they predominate, the disease is considered "lymphatic."

The writer has pointed out in a previous communication[1] the fact that a large proportion of the cases diagnosed as acute lymphatic leukemia are probably myelogenous; that a certain number of them undoubtedly are, and among this latter group are included probably all those cases giving rise to green nodules, known as "chloroma." If, then, the two types of leukemia are separate processes, the mixed cell cases must be in fact myelogenous, and their blood must contain a sufficient proportion of the non-granular myeloblasts ("marrow lymphocytes") to give the appearance of a mixture of myelocytes and lymphocytes.

Since the publication of the article referred to above, another case of chloroma[2] has come under the writer's observation. In this case, as in the others, the invading cells gave a positive indophenol reaction, and the cytoplasm of a large proportion of them, including many that were actively dividing, was finely granular. The indophenol reaction, which is a test for the presence of an oxydizing ferment, is positive in all cells of the myelocyte series, except the most primitive undifferentiated forms. It is constantly absent in cells of the lymphocyte series. In this case then, as in other cases of chloroma, the process is myelogenous. The blood picture, however, seen in specimens stained by "Wright's" modification of "Leishman's" stain, showed a very large proportion of cells resembling lymphocytes, both large and small, and the clinical diagnosis of acute lymphatic leukemia was made. Sections of the invaded tissue, on the other hand, when stained with eosin and methylene blue showed that these cells, which were supposed to be lymphocytes, did not possess the characteristic lymphocyte nucleus, and were apparently of the same type as the large granular cells present. Furthermore, even in the specimen stained by "Wright's" stain, many of these cells which resembled small lymphocytes contained a few large and small basophilic granules. It is probable that almost all of them were of myeloblastic origin, as all gradations between them and fully developed myelocytes could apparently be traced.

As to the essential nature of leukemia, the limit of our knowledge is reached when it is said that leukemia is, beyond a doubt, a malignant tumor whose cells invade the blood stream and grow there. The clinical course of the disease, with its invariably fatal issue, and all the histological and anatomical evidence, point to this view. That a tumor arising from the cells which give rise to the polynuclear leucocytes should occur cannot be considered unnatural, in view of the fact that from practically every other tissue in the body neoplasms are known to arise. Viewed in this light, leukemia can be considered as comprising two definite tumors: (1) a tumor arising from the lymphocyte, and (2) a tumor arising from the myelocyte. The terms "lymphoblastoma" and "myeloblastoma" are applied to these two tumors respectively to indicate that each arises from the primitive cell of its type (lymphoblast or myeloblast) and can manifest any stage of cell differentiation.

In other tumors there is marked variation, both in the degree of differentiation reached by the tumor cells, and in the tendency to invade normal tissues and form metastasis. For example, the cells of a fibro-sarcoma may produce a fair number of intercellular fibrils, and may resemble closely an adult connective tissue cell. Such a tumor tends to grow and invade slowly. On the other hand, the cells may be larger and closer together and may produce very little intercellular substance, and thus may resemble the younger less differentiated fibroblast. In such a tumor growth is usually much more rapid, and invasion of the normal tissues more marked. In many rapidly growing tumors a large proportion of the cells differ distinctly from any normal type. (They are often larger than the normal cells and usually contain a relatively increased amount of chromatin. Sometimes, giant cells with one or many nuclei are common.) Thus in general it may be said that the

younger and less differentiated the cells of a given tumor, the greater their tendency to invasion, and conversely, the more they resemble the adult type, the less do they invade.

If we apply this idea to the tumors of myelocyte origin, we expect to find cases in which the cells are, most of them, well developed granular cells, which multiply slowly, and rarely, if ever, leave what may be considered the normal habitat of their type, viz., the bone marrow and blood stream. Such cases are those of ordinary chronic myelogenous leukemia. We expect also to find cases in which the cells are, a large proportion of them, undifferentiated, non-granular and sometimes atypical, their growth rapid, and their tendency to invade normal tissues well marked; cases in which, furthermore, the course of the disease is relatively short. We find these cases are those of acute myelogenous leukemia. In many of them it is evident that invasion of normal tissues has gone on to such an extent that definite tumor masses are present. These masses, when green or greenish in color, as is usually the case, are called "chloroma."

Of the three cases of this acute condition which have come under the writer's personal observation, all showed a "mixed celled" blood picture; a definite infiltration of normal tissues, and a rapidly fatal course. In two of them, greenish masses or nodules were present in various organs, and were found microscopically to consist of fairly rapidly proliferating cells, which were identical with those seen in the blood stream. In the other case, infiltration of normal tissue was present, especially in the kidney, but was relatively small in amount, and nowhere gave rise to a green coloration or definite nodules which could be recognized in gross. This case and one of the two others were diagnosed clinically as acute lymphatic leukemia, while the remaining case was from the beginning, considered myelogenous. In all of them, however, the invading cells gave a positive indophenol-oxydase reaction, and in sections a fairly large proportion of the cells were seen to be granular. These three cases, then, are examples of rapidly growing tumors arising from the myeloblast in the bone marrow, and invading not only blood and bone-marrow generally, but also to a marked degree, the normal tissues outside the blood stream.

No acute cases of leukemia, in which the invading cell was undoubtedly of lymphoblastic origin, have come under the writer's personal observation. In the chronic cases, just as in chronic myelogenous leukemia, normal tissues outside the blood stream are rarely invaded. The tumor cells arise in some part of the lymphoid tissue and invade lymph nodes and the blood stream. The cells are—most of them—mature in type and resemble the adult lymphocyte (small lymphocyte). These are the cases of chronic lymphatic leukemia. In certain other tumors of probable lymphoblastic origin, the blood stream is apparently never invaded, and the tumors either invade the surrounding normal tissues locally, metastatize into lymphoid tissue only, or show general metastases into various organs. These cases include the conditions ordinarily spoken of as lympho-sarcoma, pseudo-leukemia and malignant lymphoma. The writer has recently studied a tumor whose cells were apparently lymphoblastic which gave rise to multiple metastases in the liver, spleen, kidneys, lymph nodes, bone-marrow and dura. When all are considered, then, we have, arising from the lymphoblast, tumors which invade blood stream and lymphoid tissue more or less exclusively, giving rise to the clinical picture of lymphatic leukemia, as well as certain other tumors which seldom or never, invade the blood stream.

As far as the question of treatment is concerned, leukemia may be regarded in the same light as other inoperable malignant tumors. Certain agents undoubtedly serve to inhibit the proliferation of the tumor cells, and to lengthen the course of the disease. The chief of these are arsenic, benzol, the x-ray and the radio-active substance, thorium-x.

In general, we may summarize our knowledge of leukemia by saying that it represents the invasion of the blood stream by two distinct types of tumor cells, the one derived from the myeloblast and the other from the lymphoblast. The two tumors, therefore, are of separate and distinct origin. The myeloblastoma arises from the myeloblasts of the bone marrow, which are the parent cells of the polynuclear leucocytes; the lymphoblastoma from the undifferentiated cells of lymphoid tissue. The tumors are usually of slow growth and invade only the blood stream and the tissue from which they arise. More or less invasion of other tissues is characteristic of the rarer rapidly growing forms, which constitute the clinical cases of acute leukemia.

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[2] A Case of Chloroma. Reported by Dr. W. G. Hepburn, First Assistant in Pathology, Montreal General Hospital, at the meeting of the Canadian Medical Association, London, Ontario, June, 1913.

THE OFFICE OF CORONER AND THE MEDICAL SCHOOL AT SYRACUSE.

BY H. G. WEISKOTTEN, M.D., SYRACUSE, N. Y.

From the Department of Pathology of the Syracuse Medical School.

THROUGHOUT the United States medical men are lamenting the fact that in this country there is so little opportunity to perform autopsies. It is a recognized fact that advancements in scientific medicine have gone hand in hand with, and have depended upon advancements in pathology. So today they feel that one of the greatest handicaps to the advancement of medicine in this country is the lack of opportunities to per-

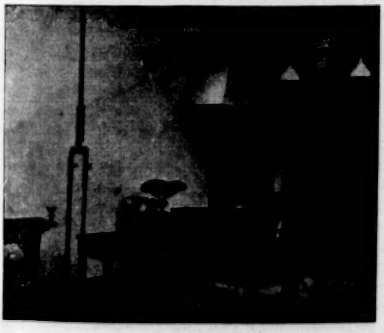
form autopsies. The tables of statistics of autopsies in American and foreign hospitals incorporated in the report of the Public Health, Hospital and Budget Committee of the New York Academy of Medicine show 19.7% autopsies in American hospitals and 83.1% in foreign hospitals. Were there opportunities for autopsies here such as there are in Europe we would not see American internists flocking yearly to Vienna and other European centers.

No medical student who has not had opportunities for performing or seeing autopsies upon cases seen in the hospital can be expected to think anatomically and pathologically; in other words can be expected to practice scientific medicine after his graduation from the medical school. The problem thus is one that presents itself as an all-important one to the medical schools of the country that wish to train doctors who will be worth while.

Until the problem is solved it behooves us to use to the fullest extent every available opportunity which is presented to us. Now one positive way of securing autopsies is through the office of coroner. During the past few years much has been written concerning the ancient office of coroner. Many feel that the coroner's system has outlived its usefulness and should be replaced by the medical examiner's system now in force in Massachusetts and a few other states.

Rather than discuss the propriety of the office of coroner I will outline the system which exists today in Onondaga County which seems to work both for the welfare of the community and to the advantage of the medical school. New York State still maintains the coroner's system.

Two years ago the county built and equipped a morgue at an expense of about thirty thousand dollars. The department of pathology of the Syracuse Medical School volunteered its services and superintended the construction and equipment of the autopsy facilities. As a result the autopsy room is spacious, well lighted and well ventilated and is provided with freezing microtome, microsope, stains, desks and other equipment essential to a modern autopsy room. Adjoining the autopsy room is a laboratory and preparation room. Upon the completion of the morgue, through the efforts of Dean Heffron and other members of the faculty, the writer, one of the members of the department of Pathology, was appointed to a newly created office of county necrotomist at a salary of $1,000 a year. The sole duty of the necrotomist is to perform the coroner's autopsies. These autopsies were formerly performed by the coroner's physicians, all of whom were general practitioners. There was practically no opposition to the creation of the office of necrotomist after one of the members of the faculty explained to the County Board of Supervisors the necessity and the opportunity for scientific autopsies. It seems to us an added advantage that the necrotomist can stay entirely within his sphere and confine himself solely to autopsy work. Coroner Kinne himself has assumed a very generous attitude in relation to the new arrangements and has cooperated to make the new office of county necrotomist a success



Autopsy room in the Onondaga County Morgue at Syracuse, N. Y.

About one hundred and seventy-five autopsies are performed at the morgue in a year. Many of these autopsies are upon hospital cases. When physicians are not satisfied in their own minds as to the diagnosis of cases terminating in death in hospitals they refer the case to the coroner without a diagnosis. The body is then brought to the morgue and an autopsy is performed. Accompanying each body brought from a hospital to the morgue is a clinical history of the case.

The morgue is located within three minutes walk of the medical school. As a result of the present arrangements there is opportunity for special instruction of the student in autopsy technique and in pathology. The class in pathology is taken to the morgue in groups of four and the students perform the autopsies themselves under the supervision of the necrotomist. They write descriptions of the organs and make frozen sections, smears and cultures. The third and fourth year students see at autopsy cases which they have studied in the hospital. Plenty of room, good light and good ventilation permit a student to give his best efforts to the study of autopsy findings instead of being a more or less passive onlooker under unfavorable circumstances.

The morgue also furnishes excellent material for instruction in gross pathology at the school and for the weekly clinical-pathological conferences which are attended by the third and fourth year students.

This paper was suggested by numerous enquiries from other cities in regard to the morgue arrangements at Syracuse. Although not a complete solution of the great problem of increasing the opportunities for autopsies in this country it seems to us that these arrangements offer a very satisfactory solution of the problem of obtaining autopsy facilities for medical students. At the same time it offers to the public the ad-

vantages of carefully performed autopsies and full autopsy records.

A SIMPLE AND EFFECTIVE METHOD FOR DISINFECTION OF TYPHOID STOOLS.

BY HARRY LINENTHAL, M.D., BOSTON,

State Inspector of Health; Assistant Physician to Out-Patients, Massachusetts General Hospital.

AND

HENRY N. JONES,

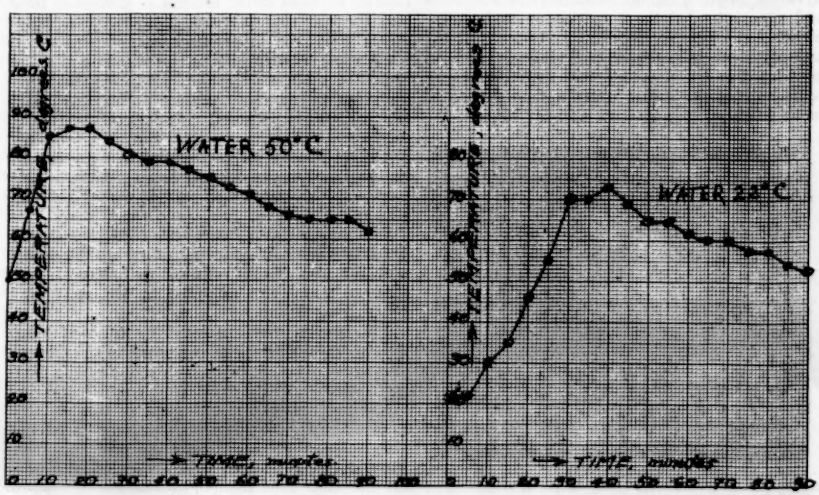
Bacteriologist to Massachusetts State Board of Health.

IT is now a well established fact that the immediate destruction of the typhoid organism in the excreta of the typhoid patient is one of the most important steps in the control of typhoid fever. Unfortunately, however, in the vast majority of cases of typhoid fever ill at their homes nothing that might reasonably be called efficient disinfection of stools is carried out.

One of us (H. L.) has had occasion at various times to investigate isolated cases of typhoid or outbreaks of the disease. The instances where he observed any procedure of what might be regarded as a serious effort to disinfect the stools were extremely rare. Only in a few communities in the state does the board of health issue any instructions when a case of typhoid is reported to them as to methods to be used in disinfection of the excreta. It is usually left to the attending physician to instruct the family in the matter. The methods usually in vogue consisted in sprinkling a little chloride of lime or sulphonaphthol over the stool, which was promptly deposited in the water closet or privy without being mixed or without letting it stand. Even in many instances where trained nurses were in attendance the procedure was not any more effective. The use of the disinfectants in such a perfunctory manner simply gives a false sense of security to the family and attendant. Not much need be said of how serious this situation becomes in communities where no public sewer exists and where the excreta are deposited in privy vaults accessible to flies, or, as often happens, when such privies are situated on some watershed.

The bedside disinfection of stools is not as simple a matter as it might appear. The proper utensils are often not available and the treatment of the stool, the thorough mixing with the disinfectant and the necessary exposure of the stool to its action, will in the great majority of cases not be carried out even when detailed instructions are given. Moreover, it has been questioned whether the disinfectants as ordinarily recommended, can be depended upon for thorough disinfection. Dr. Alvah H. Dotty carried on experiments with the various disinfectants recommended for the purpose as they are usually employed. He found that at the end of twenty hours of exposure to the disinfectant but one-eighth of an inch of the fecal mass was disinfected. Heat—boiling water or steam—is the only effective way of dealing with typhoid discharges, but clearly the apparatus needed to do that is not available in households.

A method to disinfect typhoid discharges to be both practical and effective, must be one which should require only such utensils which are available in every household and must be so



simple as to require little intelligent effort on the part of the attendant. Such a method was described by Dr. Prausnitz of Austria at the Fifteenth International Congress, on Hygiene and Demography, held in Washington in September, 1912. The method was devised by Dr. A. M. Kaiser in the Hygienic Institute of Gratz University. It consists of adding enough hot water to cover the stool in the receptacle and then adding about one-fourth of the entire bulk of quick lime (calcium oxide), covering the receptacle and allowing it to stand for two hours. The hydration of the lime generates enough heat to destroy the typhoid organism.

We undertook to test out this method. In the first place we set out to determine the quantity of heat generated and the length of time the heat is retained. To make the conditions as rigid as possible we used an ordinary tin pail with a loose fitting cover. To a litre of cold water we added from 300 to 400 grams of ordinary commercial quick lime, and the temperature was observed. We found that the lime varied in its action, while in some experiments the temperature would rise to 80° or even to 90° in about ten minutes, in others it would take twenty minutes to one-half hour for the temperature to go up to 75° or over and maintain a temperature of over 60° for one and one-half hours. We found, however, in several observations that the temperature did not go above 55° due undoubtedly to the poor quality of the lime, although it came from the same lot.

If, however, hot water was used, ranging in temperature from 50° to 65° C. it invariably rose to 75° or over in ten minutes, and in twenty minutes it reached 85° and often 90°, and a temperature was maintained over 60° for an hour and a half or longer. We found that the temperature was maintained for a longer period when an earthen vessel was used than in the tin vessel.

Of the many readings that we took using hot water we found that, starting ten minutes after the addition of the lime and continuing for one and a half hours we got maximum temperatures of 90° and minimum temperatures of 58°. The average temperature for the hour and a half period, taking readings every five minutes, was in no case less than 74°.

The accompanying chart shows the temperature readings taken every five minutes for one and a half hours, (*a*) with water 50° C. and (*b*) cold water. These curves may be regarded as fairly typical.

It was clear, therefore, that this process generates enough heat to destroy the typhoid or any other organism, with the exception of spore bearers. The next question was as to whether the heat is sufficiently penetrating to destroy the organisms in the centre of the fecal mass. To determine this we buried in the center of the fecal mass capillary tubes containing living typhoid organisms, distributed over the mass small lumps of lime, about 400 grams, and added enough water to cover the stool, and permitted the mixture to stand for one and a half hours. In all the experiments with the typhoid organisms cold water was used. The capillary tubes were then taken out and broken into a bouillon culture. No growth took place.

CONCLUSIONS.

The addition of about a cupful of commercial unslaked lime and water to a typhoid stool will generate enough heat to kill the typhoid organism. While cold water may often suffice, it cannot be depended upon owing to the variable quality of the lime. Hot water from 50° to 60° C. will always give the desired results. The lime used should be in lumps, broken up in small pieces and distributed over the stool.

We believe that this is a simple, efficacious method and should take the place of the various methods now recommended by local boards of health.

CANCER OF THE LOWER LIP.*

[CANCER CONTROL.]

BY JOSEPH C. BLOODGOOD, M.D., BALTIMORE.

WHAT facts have we today in regard to cancer of the lower lip which should be known to the laity, the general practitioner and the expert surgeon?

In the surgical pathological laboratory of the Johns Hopkins Hospital I have investigated critically about 200 cases, which have been treated in the Johns Hopkins Surgical Clinic, or at the Union Protestant or St. Agnes Hospitals, or cases which have been sent to the laboratory from other sources for diagnosis and record.

In not a single case did a cancer of the lower lip begin in normal skin and mucous membrane. There was always a previous defect, as a rule, present some months before the signs of the development of cancer. In many cases the original, or precancerous, lesion had been observed by the patient for years before the signs of cancer developed. Therefore, there was ample opportunity in every case for the healing or excision of the lesion in its benign state.

We rarely observe on the lower lip congenital subepidermal nodules which later grow and form cancer. These are more frequent on the face and scalp. Any irritation of the skin or mucous membrane gives rise to one of two results: If the epidermis is destroyed there results an ulcer; if this ulcer does not heal we have a chronic ulcer. If the epidermis is not

* Author's abstract of paper read before the Southern Medical Association, at Louisville, Ky., Nov. 20, 1913.

destroyed there is a hypertrophy, both of the superficial horny layer and of the papillary epithelial body as a downgrowth. This hypertrophy gives rise to a gross lesion variously called "wart, papilloma, corn, callosity"; each of these varies slightly in its gross appearance, explaining perhaps the different terms.

In both resulting lesions, the ulcer and the wart, there is epithelial activity of a far greater degree than in the normal skin. What the factor is which starts the epithelial activity giving rise to a local growth called cancer, we do not know.

I have had the opportunity to investigate critically fifteen benign precancerous lesions of the lower lip. In the first place it is interesting to note that only five of these were observed previous to 1908; the remaining ten have come under my observation since 1908. Practically every one of these new cases can be traced to an educational suggestion.

In all of these cases a v-shaped piece of the lower lip was excised, giving the lesion, except in one instance, a good margin. All of these cases have been traced. In 14 there has been no recurrence. In the one case (a burn from smoking) the margin was insufficient; the lesion was excised later and has not recurred. The scar from the operation in these cases is not mutilating. The case just noted, in which there was a recurrence, was one sent to the laboratory for diagnosis.

Smoking seems to be the most common etiological factor. In five cases we have the typical burn from smoking a pipe or a cigar. This I will describe later in detail in its relation to cancer. There are two benign ulcers from smoking, undoubtedly the original lesion was a burn. There were two ulcers, one from the wound and one secondary to a pimple. In six cases the result was a wart. The etiological irritating factors previous to the development of the wart were, wound, one case; fever blister, two cases; biting of lips, one case; smoking, two cases.

In nine of fifteen cases the irritation or burn from smoking has produced the precancerous lesion.

The duration of these precancerous lesions is very interesting. In two cases the lesion was present less than one month before it was excised: one a wart from biting the lips, and one a smoker's burn. In the third case the lesion had been present about six weeks—an ulcer of the lower lip associated with the excessive use of tobacco.

In all the other twelve cases the lesion had been present more than six months; in four cases three to four years. Three of these were warts, one a chronic ulcer.

These twelve patients who waited longer than six months took their chances of cancer, as I will show later in discussing the interval of time before the development of cancer in precancerous lesions of the lower lip.

SMOKERS' BURN.

This apparently is a distinct lesion in the gross, and apparently quite distinct microscopically. At the muco-cutaneous border, at the point of contact of cigar or pipe, there appears a small depression, oblong in shape, with its long axis at right angles to the muco-cutaneous line; the color and consistency of the mucous membrane and skin is changed; the tissue looks charred; it is not a scab because it cannot be picked; on palpation this little surface defect is leathery, and not moist and soft as normal mucous membrane and skin. The induration, however, of cancer is absent.

I have had an opportunity to study microscopically such a smokers' burn lesion of four weeks' duration and one of one year's duration. In both cases the charred tissue consisted of degenerated hornified epithelium; beneath this there was a thin zone of epidermis resembling the epidermis one finds in experimenting with the healing of wounds and skin-grafts. That is, there is no papillary body, no hair follicle, or gland. In the burn of four weeks' duration there are still some areas which are not covered with epithelium. In the burn of one year's duration the entire defect is covered with a layer of epidermis, the surface of which is covered with degenerated hornified epithelium. A smokers' burn, therefore, may be only a partial charring of the superficial layers of epidermis, but this must lead to the entire destruction of the epithelium of the epidermis. The charred dead cells remain as a cover and new epithelium grows across, so that if the burn is not continued and there is no other injury, this defect may heal without evidence of ulceration or any discharge.

MALIGNANT WARTS.

During the same period we have observed seventeen malignant warts. All of these cases, except one, have remained well since operation. In nine cases the operation consisted of an excision of a v-shaped piece only; in the remaining eight cases the glands of the neck were also removed. In not a single instance did the glands show metastasis.

In the one case which has not been cured, the wart extended almost from angle to angle of the mouth; it had been present two years. A careful reading of this history and of the operation notes, combined with the pathological report, will show that the wart was incompletely excised. The failure to cure in this case, therefore, was due to the operation, and not to the disease, although the necessary operation in this case would have been mutilating, and this necessary mutilation to cure a malignant wart of the lower lip resulted because the patient allowed the evident warty growth during a period of two years to grow over the entire lower lip.

In two instances the duration of the malig-

nant wart has been two months. In one instance five months; in the remaining cases more than six months; the case of longest duration was ten years.

Apparently a proper local operation is sufficient to guarantee a cure in a malignant wart. For this reason the surgeon need not do any more for such a tumor. As a matter of fact, it will be difficult sometimes to distinguish the malignant wart from the benign. As a rule the wart is larger and may show some ulceration on its surface or base. But the diagnosis of malignancy is a microscopic one.

The same etiological factors are given in the cases which came under observation with malignant warts, as those with benign. Whatever the irritating factor is, the result is a wart.

The importance of the duration of the disease is shown when we come to investigate the fully developed cancer of the lower lip.

There is not a single case of cancer of the lower lip which sought advice within one month after the beginning of the trouble. Two cases came under treatment within two months after the onset of the disease: both of these cases have remained permanently well for more than five years since operation; in both the precancerous lesion was a pipe burn; in both the glands were removed at operation, but did not show metastasis. These two cases demonstrate that carcinoma of the lower lip may develop within two months after the onset of such a simple lesion as a smokers' burn which I have just described, but as yet the patient still has 100% chances of a cure, if the surgery is good.

Among the five-year cases there is but one lesion of three months' duration. This was a fully developed cancer in a smokers' burn, and there has been no recurrence now more than fifteen years since operation.

In those cases which inform us that the lesion has been present from three to six months we find for the first time metastasis to the glands of the neck in which the probability of a cure is but fifty per cent.

With our experience up to date with five-year cases, we may safely say that if the lesion on the lip has been present three months or less, the chances of a permanent cure, if the surgery is good, should be 100%. The lesion should be excised under cocaine with a good margin; it should be studied microscopically; if it proves to be a fully developed carcinoma the glands of the neck should be removed. This operation is by no means a simple one, and should not be performed by an inexperienced surgeon. Unless properly done, it would be better for the patient to have it left undone. In this operation the submental, submaxillary and subparotid glands should be removed *en-bloc*. The submaxillary salivary and a piece of the parotid are included in this dissection. In a later paper I will show that in the great majority of cases this dissection has not been complete enough. Of course, if the glands show no metastasis, the poor dissection makes no difference. Our results show that among 21 cases in which the lip and the glands (no metastases) were removed, there have been 20 five-year cures, or 95%. The failure to cure in this one case was due to a local recurrence. When the glands have shown metastasis, we accomplished cures in but six out of twelve cases, 50%.

Everyone, therefore, should know the potential danger of a simple lesion on the mucocutaneous border of the lower lip, whatever that may be, and if healing is not accomplished within one month the lesion should be excised. As I have just written, warts may become malignant within two months, cancer may develop in a pipe burn within two months, and a fully developed cancer with metastasis to the glands is possible after three months. The greatest danger is from delay of more than six months.

The general practitioner should know that the best treatment is the excision of the lesion with a good margin of healthy tissue. All should know that it is unnecessary and not advantageous to perform such an operation under general narcosis. It had best be done under local anesthesia. All should know and should insist upon a careful microscopic investigation of an excised piece of tissue. If this proves to be a fully developed carcinoma of the squamous or spinal-cell type, the patient should be urged to have the operation upon the glands of the neck. But the general practitioner should know that this operation should only be performed by an experienced surgeon, or not at all.

Surgeons should study the results in their cases of cancer of the lower lip in which the glands showed metastases. My own investigation showed but 50% of five-year cures. In a careful study of the cases I find that in the early operations both submental and subparotid lymph glands were left behind; in recent operations the subparotid. I feel that it is impossible to completely remove these glands without the ligation and excision of the upper portion of the internal jugular vein behind which they lie.

It seems to me that a clear statement such as this in regard to cancer of the lip should be given to the laity and the general practitioner, and surgeons should attempt to keep such records that they will be able from time to time to make a report of this kind.

Colonel Gorgas, M.D., Chief Sanitary Officer of the Panama Canal, has been elected a honorary Fellow of the Royal Sanitary Institute; and Colonel Guy Carleton Jones, M.D., Director-general of the medical service of the Militia of General of the medical service of the Militia of Leith, have been elected Fellows.

—*British Medical Journal.*

Clinical Department.

URETHRAL CHANCRE.

BY I. J. WALKER, M.D., BOSTON.

THE case reported below is interesting from the point of view of diagnosis, also because of the fact that it appeared while the patient was being treated for another lesion of the urethra:

CASE. January 7, 1913, L. R., male, single, age 26. Born in Canada.

F. H. Negative.

P. H. Children's diseases. Pneumonia in June, 1910. Gonorrhea contracted one year ago, the discharge of which has never ceased.

P. I. Comes for treatment of urethral discharge which is seen only in the morning.

P. E. Negative except for examination of genitalia. Meatus slightly reddened and moist. Prostate slightly enlarged on right but not tender. Both urines clear with few shreds.

The patient was given treatment for chronic anterior and posterior urethritis with prostatic infection.

Feb. 10, 1913, patient at visit complained of hard area on underside of penis also of intense burning micturition. Examination showed an indurated area oval in shape on floor of the urethra about one inch from meatus. No enlargement of inguinal glands. On questioning the patient the latter said that five days before on the advice of a friend he had used a urethral injection of strong sulpho naphthol. Immediately after this he experienced severe pain along the course of the urethra which lasted several hours. Later on urinating, he passed some blood and several shreds some an inch in length. The latter undoubtedly were parts of the urethral lining. The following day he had difficulty in urinating because of pain and for the first time noticed the hard area described.

The induration was interpreted as being due to inflammatory tissue. All local treatment was stopped for the time being. The patient acknowledged exposure to venereal disease several times during the last two months.

Two weeks later the patient developed a well-marked secondary rash of syphilis. Wassermann reaction was positive. On Feb. 28, 1913, the patient was given .9 gm. of neosalvarsan intravenously. Two similar doses were given at three-week intervals. The rash had disappeared on March 20. The indurated area gradually diminished in size following the first injection of neosalvarsan and had entirely disappeared by April 25. Since then the patient has been on mercurial treatment.

Urethral chancre, while not common, has been reported by Baye, March, Whitney, and many others. Tanton (*Le Progrès Médical*, Paris, 1910, vol. xxvi, pp. 607 and 619) reviews the subject thoroughly and adds a most complete bibliography.

New Instrument.

BONE DRILLING AND BONE PLATING SET.

BY LOUIS A. O. GODDU, M.D., BOSTON.

From the Clinic of the Orthopedic Department of the Massachusetts General Hospital.

IN presenting the following set of instruments the writer appreciates the fact that he does not bring to notice anything surprisingly novel in the device, but varies only in its application. It has always occurred to him that our measures, for drilling holes in bone were, either too complicated, or in some way inadequate for a great many cases. For instance, in the common twist drill we have always to deal with the problem of small gears, also that the drill was not at all times under the immediate control of the surgeon. This perfect control of the drill, it must be conceded, is a thing to be greatly desired.

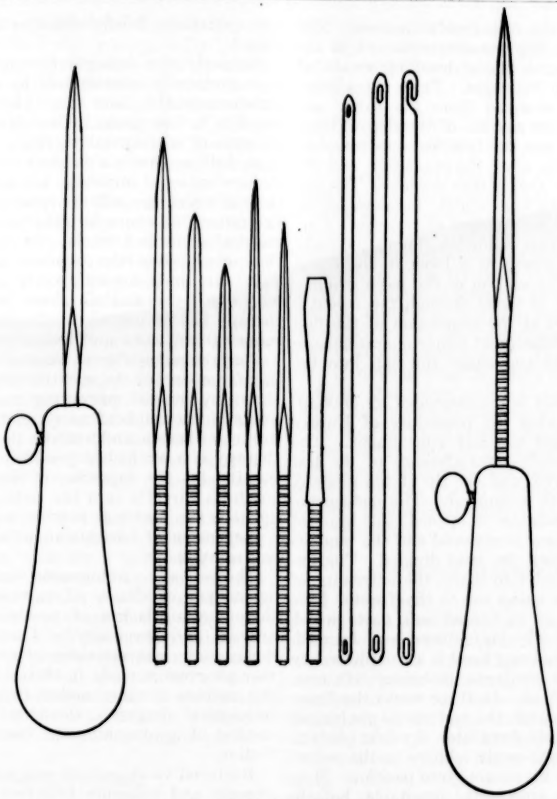
The accompanying illustration shows the set of drills that has been used by the writer, and some of his associates at the Massachusetts General Hospital, and it seems that the results of their use justify this description and advocating their use.

The drill, as the picture shows is a modification of the common reamer used by machinists. It is triangular in shape, and has a sharp cutting edge at each of its three corners; the points are made especially sharp and abrupt to give strength combined with a cutting edge. It is made of hard tool steel, and capable of penetrating the hard corticle bone which is sometimes met with.

The shank portion of the drill is half round, with the flat surface corrugated so that the thumb screw can set at the desired position of length. This shank can be set in the hole bored in the handle for a short or long drill as desired. The object of this is to meet the different requirements of cases, that is whether the bone is near the surface or a distance from it, the drilling being done with greater ease if the hand is free from surrounding tissue.

The handle is of solid steel with a hole bored in it almost to the top, this is for adjustment as mentioned above. As it is practically solid it is somewhat heavy, but not too much so, just enough to be handled easily and to add weight to the drilling force materially. The thumb screw is purposely large and flat, that it can readily be handled with sterile gloves, also that it gives a point of support for the index finger during drilling.

In the bone plating the shank with the screw-driver is adjusted to same handle. Thus, a bone plate is put in position, the drill makes the hole after which, the drill is left in position and handle removed. The screw-driver is set in the handle, the drill taken out of the bone then the screw is inserted in the hole, and the screw-driver drives it tight.



Bone Drills, ¾ actual size.

With this set the writer, as illustration shows, has bodkins that are used to pass through holes in the bones, to carry tendons or sutures in tendon transplantation work. The bodkins are not tempered but are of sufficient strength to hold, and capable of being molded in the shape desired for the passing of tendons at different points.

The advantages of the drills seem to be:—

1. Different sizes to one handle.
2. The drill is always under the control of the surgeon, while the hole is being drilled.
3. Simplicity and ease of sterilization.
4. Changes that can be made quickly from one drill to another, or to the screw-driver as desired, during operation.

Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, M.D., BOSTON,

AND

D. C. GREENE, M.D., BOSTON.

TRANSPLANTATION OF BONE IN THE CORRECTION OF NASAL DEFORMITIES.

Carter[1] has successfully transplanted bone from a rib to make up the deficiency in cases of external nasal deformity with absence of bony structures as well as soft tissues. He resects a piece of the right ninth rib about three inches in length, splits it and scrapes away the cancellous tissue from the outer half, then transplants this half between the superficial and deep fasciae over the biceps of the left arm. At the end of ten days the bone becomes incorporated in the tissues, and a flap about one-third larger than is needed to reconstruct the nose, is dissected up. This flap includes the bone graft and is made large in order to allow for contraction which always takes place. The upper end of the flap is sutured into proper position on the face, the end of the bone graft being placed under the

periosteum over the naso-frontal process. The lower end of the flap remains attached to the arm which is bound to the head by means of plaster strips and bandages. Three days later, skin grafts are removed from the thigh and placed on the under surface of the flap. Union between the flap and the face becomes complete in about two weeks after the operation, and the attachment to the arm is then severed. The circulation in the flap immediately becomes feeble, and there is apparent danger of necrosis. Carter believes that this condition can be partially relieved by attachment of a leech to the distal end of the flap, the suction of the leech producing a strong flow of blood through the recently formed capillaries at the connection of the flap with the face. Subsequent minor operations are necessary to mold and shape the flap into the desired form.

A similar method is recommended by McWilliams[2] who, following the procedure of Finney and McGraw, uses the left ring finger. The skin from the whole circumference of the last phalanx is removed, and the tip of the phalanx is nipped off with a rongeur. The metacarpo-phalangeal articulation is opened, the head of the metacarpal bone is removed and the tendons and ligaments about the joint divided. The finger is then slipped into place, the extremity of the last phalanx going up to the frontal bone under a bridge of undivided soft parts which have been elevated by knife dissection. Immobilization of the head and hand is accomplished by plaster of Paris bandages, including left arm, body, neck and head. In three weeks the finger is amputated through the metacarpo-phalangeal articulation. Eight days later, the first phalanx is flexed to a right angle relative to the second phalanx, and its tip sutured into position. More or less sepsis is apparently inevitable, but the infection is not severe and healing takes place with only moderate delay.

VACCINE THERAPY OF NASAL DISEASES.

During the past few years a large number of practicing physicians have been treating their patients with vaccines to combat some definite or indefinite infection. Among these infections are included the acute inflammations of the upper respiratory tract commonly called "colds," and also more chronic conditions of the nose and accessory cavities. For various reasons practitioners have tended to divide into two groups, those who use vaccines frequently and those who use them very infrequently or not at all. Under such circumstances it is reasonable to suspect that both of these groups are extremists, and that the time is ripe for a better understanding of the limitations and the benefits of this form of treatment. A committee appointed by the Council on Pharmacy and Chemistry of the American Medical Association has prepared a series of articles dealing with the whole subject of bacterial vaccine therapy, from which a few quotations briefly describe existing conditions.*

Formerly the autogenous bacterial vaccines were cautiously administered by the expert bacteriotherapeutist, now any physician is supposed to be competent to inoculate patients with all sorts of commercial vaccines. In little more than half a decade a method of biologic treatment of unusual intricacy, the value and limitations of which are still far from being accurately determined, has gone into the hands of the medical profession as a whole. In the midst of this chaotic situation the prudent and thoughtful physician finds himself sorely perplexed. He who would use and not abuse bacterial vaccine therapy has no unprejudiced guide as to its administration, value and limitations.

That the popularity of clinical vaccine therapy has far exceeded its scientific aspects is clearly shown by the still prevailing uncertainty which exists in the minds of many relative to the exact nature of serum and vaccine therapy. Vaccine therapy is a method of producing an active immunity by the injection of bacteria or their products directly into the patient. The active agent is the bacterial vaccine, which is actually a suspension of bacteria in water or in normal salt solution.

Theoretically, autogenous vaccines are the agents par excellence of vaccine therapy. By their use antibodies of precise specificity are aroused and specificity is found to be a predominating characteristic of antibodies as further progress is made in their study. Autogenous vaccine therapy makes prerequisite a bacteriological diagnosis, the only really scientific method of approaching the treatment of an infection.

Bacterial vaccines were originally used only in chronic and subacute infections, and theoretically this limitation is justified, but improvement of both local and general conditions following the inoculation of a correctly graduated dose of autogenous vaccine in acute cellulitis and phlegmon has been observed and recorded by a sufficient number of competent workers to justify its further trial.

As material for his experiments in vaccine therapy the practitioner who relies on the market products should supply himself with vaccines of individual bacterial species. He should learn to discriminate cases in which stock vaccines can be successfully used, and procure a stock representing this selection.

For use under circumstances in which autogenous vaccines are not available staphylococcus vaccine is prominent among the comparatively few which by common consent are valuable as stock preparations. In the literature advertising commercial vaccines, staphylococcus vaccine is recommended in otitis media, mixed infections, mastoid infection, frontal sinus and an-

* The committee consisted of Drs. Ludvig Hektoen, Chicago; David L. Edsall, Boston; John Howland, Baltimore; Reid Hunt, Washington, D. C.; and Albert P. Ohlmacher, Detroit.
The first article appears in the *Journal of the American Medical Association*, April 26, 1913, p. 1298.

trum of Highmore infection. Such a list embraces both localized and general infections of variable etiology with staphylococci as exceptional factors, or if involved usually secondarily.

The field of usefulness of the stock streptococcus vaccine is strictly limited, and this limitation seems to be directly related to the variations which streptococci from different sources and different morbid conditions present which lead to the appearance of those diverse biologic characteristics by which they are differentiated into the groups, races, or strains which subdivide the pathogenic streptococci as a species.

In such affections as streptococcus angina and adenitis following milk infection, autogenous vaccine therapy has been advocated.

The organisms included under the species pneumococcus vary as to races, strains or groups much as streptococci. For specific therapeutic effects one must recognize this variation to the extent of providing for autogenous vaccines in such cases as offer promise for bacterial inoculations. There is little evidence that stock or autogenous vaccines are of value in pneumococcic infection.

The committee concludes that vaccine therapy is a highly specialized field of medicine whose successful pursuit calls for a particular training in bacteriology, immunology and clinical medicine. The therapeutic possibilities of vaccine therapy have been exaggerated. The promiscuous use of the stock bacterial vaccines of commerce in the treatment of acute and chronic infections is an irrational procedure. Ready mixed commercial vaccines should be abolished. In cases suitable for bacterial therapy, autogenous vaccines are with few exceptions superior.

DIPHTHERIA CARRIERS.

Cases which continue to show positive cultures for diphtheria for weeks after the disease has clinically disappeared frequently worry the boards of health and are the despair of the attending physician. The bacilli reappear after vigorous local antiseptics. Cases have been reported in which removal of the tonsils and adenoids has been followed by prompt disappearance of positive cultures, but this rather radical treatment has not always been successful. Vaccine therapy with Klebs-Loeffler vaccine is also of doubtful value. Recently Schiotz[3] has sprayed cultures of staphylococci into the throats of diphtheria carriers and obtained a quick disappearance of the diphtheria bacilli with no bad results to the patients. Similar results have been reported by others, although in one case[4] the use of the staphylococcic spray was followed by an attack of acute tonsillitis with abundant staphylococcus growth.

Wood[5], suggests the use of a spray of Bacillus Acidi Lactici. He has used it in five cases with good results after failure with local antiseptics.

On the other hand, Bissell[6] concludes from work done by the Buffalo Department of Health, that these cultures do not destroy the bacilli of diphtheria, but merely make their detection impossible.

[3] *Journal American Medical Association*, Oct. 11, 1913, p. 1393.

REMOTE RESULTS OF TONSILLOTOMY AND TONSILLECTOMY.

In a comparative study of 110 cases of tonsillotomy in Harmer's clinic and an equal number of cases of tonsillectomy, with reference to the remote effects of operation, Whale[6] finds that with the single exception of voice troubles tonsillectomy is more likely to cure the complaint for which advice is sought. Impairment of the voice or failure to improve vocal disturbances was noted in 27% of the tonsillotomy cases and in 48% after tonsillectomy. It is to be remembered in determining the value of such statistics as these that standards of voice production differ with individual observers. That a change in the quality of the voice corresponding more or less to the amount of tissue removed, may take place, is to be expected, and in view of this fact, due caution should be exercised in recommending professional singers and speakers for tonsil operation.

SUSPENSION LARYNGOSCOPY.

The direct method of inspection of the larynx has long since established its value in connection with operative procedures in the larynx, trachea and bronchi. An interesting and promising adjunct to the method has been devised by Killian[7] in an apparatus for suspension laryngoscopy. The object of the apparatus is to enable the operator, after placing his laryngeal speculum in the position giving the proper view of the larynx, to fix it in that position by mechanical means so that both his hands may be available for the operative purpose. Its function is that ordinarily performed by the assistant who holds a retractor in a general surgical operation, but in this case it does the work better than an assistant because here an assistant is unable to tell whether his retraction is effective or not since he cannot see the laryngeal region which is only visible to the operator. An assistant's retraction is therefore ineffective and it is necessary either for the operator to do his retracting himself, thus leaving only one hand available for operating, or to use some mechanical device which will hold the speculum and the head of the patient in the desired position.

Killian's apparatus reduced to its simplest terms consists of two parts:—(1) a right angled laryngeal speculum having a hook at the end of the handle, and (2) a gallows on which the speculum is hung by the hook. The gallows is adjustable in all directions.

The patient being placed in the dorsal position on the operating table with his head and neck extending beyond the end of the table, the laryngeal speculum is introduced in the usual manner until a good view of the larynx is ob-

tained. The speculum is then held in this position by attaching it by its hook to the gallows which is adjusted to the proper position. The weight of the patient's hanging head is thus chiefly supported by the apparatus at its point of pressure at the base of the tongue.

It is admitted by Killian that suspension laryngoscopy has its limitations. Patients whose mouths cannot be opened wide, those who have long projecting upper teeth, and those with thick, resisting tongues, present, in some instances, great difficulty in the use of the apparatus. It has been used and favorably reported on in this country by Freudenthal[8] and Mayer[9].

Albrecht[10] has made an alteration in the speculum with a view to securing a better view of the anterior commissure.

CHRONIC STENOSIS OF THE LARYNX AND TRACHEA.

Lynah[11], in an interesting study of chronic laryngeal stenosis confined principally to stenosis following diphtheria, gives a general résumé of the pathology. He considers that all of the pathological lesions met with in the various forms of chronic stenosis, whether the primary cause be diphtheria, syphilis, or what not, follow the same course of new connective tissue, cartilaginous, and bony development.

In laryngeal diphtheria the basis for the whole of the pathology of the condition is laid down in the beginning with the acute diphtheritic exudate and primary intubation. When the exudate resolves early the patient is able to remain without the tube on the first extubation, but when the exudate does not resolve early and extubation is performed the subglottic infiltration necessitates the wearing of a tube for a longer period. The tube virtually acting as a foreign body, causes pressure on the swollen laryngeal soft parts, and as it rides up and down or antero-posteriorly during the acts of coughing and swallowing, the unhealed ulcerations are increased, which also add to the necessity of prolonged intubation. These pressure ulcerations are most marked at the cricoid cartilage, and when of sufficient degree cause necrosis with absorption of the whole of the cricoid ring, with the frightful sequelae of persistent auto-extubation. With the absorption of the cricoid cartilage the tube can no longer be held in place by the retention swell, and is, therefore, auto-extubated, and as the tube is coughed out the larynx collapses, or the walls are sucked together by the first inspiration of the patient.

The necrosis is the starting point of the subacute and chronic cases. Round cell infiltration, followed by productive inflammation, which leads to the formation of new connective tissue, altogether reconstructive, obliterates the lumen. This new connective tissue is richly supplied with blood vessels. Now the changes next involve the cartilage, and the regeneration of the thin areas left results in ossification, and where we once had a cartilaginous cricoid we now have new bone formation.

In treatment, gradual dilatation with special tubes measured in millimeters with increasing diameters, is advised. The tubes should dilate antero-posteriorly as well as laterally, and tubes of cigar shape accomplish this purpose. They are gradually increased in size until the largest possible dilatation is accomplished, and are changed once each week for the purpose of cleansing, a size one millimeter larger being introduced at each change.

LARYNGECTOMY FOR CANCER.

In no department has progress been more marked than in external operations on the larynx. During the past year two notable contributions on this subject have been made by Crile[12] and Gluck[13]. The former in a series of twenty four cases reports an operative mortality of two while the latter has had no deaths in the last sixty-three cases operated upon by him. In striking contrast with these figures are those of Sendziak published in 1888. In 147 cases of laryngectomy reported at that time there was an operative mortality of 39%. The cause of death in by far the largest number was inhalation pneumonia; next came sepsis about the larynx or trachea; other and less frequent causes of death were secondary hemorrhage and shock. It is evident that the improvement in results in the series now reported is to be traced directly to improved technic based upon a study of the causes of death above mentioned and of the most effective methods of combating them. Gluck maintains that inhalation pneumonia and sepsis can be avoided by what he considers the essential step of his operation, namely the complete segregation of the trachea from the laryngeal wound. The order of his operation is as follows:—

1. Dissection of larynx and trachea and ligature of vessels before opening the air passage.
2. After separating the larynx from the pharynx, closure of the pharyngeal opening.
3. After separation of the larynx from the trachea, suture of the latter to the skin.
4. Closure of the entire wound by suture except for iodoform gauze drainage at the upper and lower limits of the wound.

Crile's[14] technic differs in some essentials from Gluck's. He considers the dangers from the operation to be: 1. Inhalation pneumonia. 2. Local infection. 3. Mediastinal abscess. 4. Vagitis. 5. Shock and collapse due to injury of the laryngeal nerves. The first danger is avoided by scrupulous maintenance of a dry field in the entire course of the preliminary dissection, and control of the bleeding in the later stages by posture or the use of novocain and adrenalin, preference being given to the latter. The second danger is combated by attention to foci of infection in the mouth and throat, by

careful sharp dissection and by the use of iodoform gauze packing. The occurrence of mediastinal abscess is avoided by preliminary tracheotomy and at this operation packing of the lateral planes of the neck with iodoform gauze. By this means a barrier to infection is produced in the form of a wall of granulation tissue. The danger of vagitis caused by trauma to both pneumogastric nerves is a real one. It is serious only if both nerves are simultaneously injured. Therefore at the preliminary operation it is advised to carry the dissection along side of the larynx on one side all the way to the upper margin of the field of operation and then pack this territory with iodoform gauze, and so let one vagus take the brunt of exposure and adjustment before the larynx is removed. By the time the laryngectomy is done the first vagus would be likely to resume its function, should it have been affected, or at any rate the heavy onslaught of the vagi simultaneously is avoided.

The hypodermic injection of atropin 1-100 grain with the local application of novocain is a protection against the danger of shock and collapse.

Crile advises against freeing the trachea and stitching it to the skin on account of the danger of necrosis of the stump, cutting out of the stitches and consequent retraction of the trachea into the thoracic cavity.

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Reports of Societies.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY.

The regular meeting was held at the American House, Boston, Nov. 19, 1913. Dinner was served at 6.30 p. m., President, DR. WILLIAM H. KELEHER presiding; Dr. A. E. SMALL, Secretary.

Dr. L. R. G. Crandon of Boston, read the paper of the evening on

SURGICAL DRESSINGS.

He said in part that the topic is timely inasmuch as our attitude toward the treatment of wounds is approaching a more rational and reasonable basis. A beginning infection is local first, then more and more diffuse. To combat it we must get more blood to the part. We get arterial blood by means of heat and moisture in the form of the old-fashioned poultices; and venous blood by Bier's hyperemia. An increased amount of blood in the part kills the infection, it remains localized and we can then drain. The right cut for a septic process is a delicate matter. The active process is a core with a wall round about. A big cut through this protecting wall is the worst possible thing. The incision should be made into the centre and only large enough to let the pus out. "Drains" do not drain. We must have something to keep the drainage going. This is accomplished by Wright's solution, where action is based on the principle of osmosis with the additional benefit of dissolving the blood clot, etc., thus preventing the plugging of the opening. The dressing is put on hot and sopping wet and kept so for 24 to 36 hours. If kept in longer the wound becomes macerated and soggy and loses its power of healing. No wick is put in and the wound remains wide open. Thus the acme is past when the incision is made. We have dropped the use of most of the chemicals. Corrosive sublimate has absolutely gone by. It forms an albuminate and keeps the wound hot and uncomfortable. With regard to sulpho naphthol, certain bacteria seem to prefer it to anything else as a culture medium. Chlorinated soda has some virtue in that it sets free one atom of nascent chlorium and so helps combat the infection. A watery solution of myrrh is good in the convalescent stage, as it is stimulating, pleasant and comfortable. After Wright's solution it is desirable to use something soft and emollient. This is obtained by balsam Peru, a drachm to the ounce of castor oil. Also glycerine which is slightly antiseptic and at the same time dehydrates. Mild chemicals such as boric acid, eucalyptol 5% in vasaline base may also be used. Scarlet red probably does not cause much spread of epithelium.

Boils may have a general significance, but when there is a crop close together it is a reproach upon the doctor. To treat them, smear the surrounding skin with boric acid ointment, and powder the top with boric powder. It takes a week to ten days for one to mature, and everything is ready when it opens. Never incise, but wait.

Carbuncle. Staphylococcus vaccine may abort one-fourth to one-third of the cases if seen early. In the late stages, as usually seen by the surgeon, we must excise, cutting deep and removing all the infected tissue. Then apply emollient dressings.

Burns need to be covered with something anesthetic, antiseptic and wet. A saturated solution of picric acid answers all these requirements. Best applied with a thick absorbent cotton dressing and kept wet.

Appendiceal abscess is no longer washed out, but carefully wiped dry so as not to carry infectious material. A spiral cut drain is better for sucking out material and protects the gauze. After once placing leave the wick alone for five days. The cause of the abscess has been removed and all the pus gotten out. There will be no more unless necrotic areas present. The wick is to render the region external to the rest of the body by causing adhesions and making one big cavity. On the fifth day the wick comes out easily and leaves a unit cavity. If removed earlier the intestines are liable to collapse, leaving a lobe deep in, which may cause a secondary abscess. After the wick is removed, pour in balsam Peru and let alone. The same principles hold for any pelvic abscess.

Tuberculous nodes of the neck if localized and freely movable can be excised without cutting into

the gland. Remove the tonsil also. If the node has broken down, we cannot dissect without breaking into it. Make a small incision to let out the pus and then we have to deal with a cavity wall which is alive with germs. The curette is a criminal instrument: it plows up the field and carries germs far and wide, causing a serious spread of the disease. One may wipe out the cavity with gauze, then paint the inside of the cavity with iodine.

The preparation of the field of operation goes through stages of fashion. The iodine preparation is a good way. There may be a hundred others. The preparation is done under ether, cleaning first with benzine, then applying the iodine, following with Harrington's solution and lastly alcohol. This prevents any irritation to intestines drawn out upon the skin. The day of soap and water preparation has gone by. There are enough disadvantages to put it in the discard. The soap is not all saponified. The skin is covered with grease under which the germs grow. Besides the patient all through the operation lies in a pool of water and is liable to suffer from shock.

After a brief discussion the meeting adjourned.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

MEETING OF WEDNESDAY, NOVEMBER 12TH, 1913, AT 8.30 P. M.

The President, Dr. Charles A. E. Codman, in the Chair.

THREE CASES OF MYXEDEMA, ONE ASSOCIATED WITH PITUITARY DISEASE; WITH PRESENTATION OF PATIENTS.

DR. WILLIAM HARMAR GOOD, three cases cited: Mr. J. B., married; 58 years; electrician; rapid onset 15 years ago; typical myxedematous infiltration with markedly subnormal activity of all the organs. Leucocyte count 3020; polymorphonuclear 32%. Improved rapidly up to a certain point on three grains daily dessicated thyroid U. S. P. Then on account of tolerance to glucose, sexual atrophy, an x-ray examination showing absence of posterior clinoid processes, and continued subnormal temperature 96.5°, systolic blood pressure 73 to 80 mm., he was given three grains of dessicated pituitary with great improvement.

Mrs. M. M.; 29; married at 15 years; 4 children; typical myxedematous infiltration; subnormal blood pressure; temperature and pulse, amenorrhoea, obstinate constipation, scanty urine, marked depressional delusional insanity, and profound asthenia of mind and body. Rapid return to normal on 2 grains daily U. S. P. thyroid.

Mrs. T. L., 38 years; two children; seven years duration typical myxedematous infiltration, and subnormal activity of all the organs. Five grains of thyroid in four days caused most profound prostration, but great improvement in symptoms. In three months took but 23 grains of dried thyroid with great improvement and then became very intolerant to but smallest doses of thyroid (¼ every four days). At times could take one or two grains daily.

In the three cases one grain of thyroid was given never more frequently than four times daily and often in but fractional daily doses. The dose of four grains given in U. S. P. is very dangerously excessive.

THE TREATMENT OF PNEUMONIAS.

DR. ROBERT N. WILLSON, The very few who make the distinction between lobar or fibrinous pneumonia and that which we may term for sake of accuracy of description, broncho-catarrhal pneumonia, avoid speaking of the "treatment of pneumonia" and never include under the one term conditions as different as darkness from light. It is most important to determine very early which form of involvement is present. The temperature, pulse, and respiration chart usually suffices to make the differentiation. In most respects the treatment of the two conditions is the same. In certain essential points, however, the methods of handling must be as divergent as two opposite-traveling roads. In both forms of pneumonia an abundance of fresh air is an essential. If possible the patient should be placed bodily out of doors, *provided, and only provided the case is of a febrile type of fibrinous pneumonia.* In exceedingly few, if in any such cases, does the temperature curve average as low as 100°F, and the patient cannot "take cold." He must, however, be protected from the discomfort of extreme weather. The patient with broncho-catarrhal pneumonitis needs the fresh air and oxygen as seriously as does he with the fibrinous inflammation and exudate. If supplied in the form of cold air, however, to a body whose poverty in heat and vital energy is already low, death may be the result. I have seen such result from the use of the "cold fresh air treatment for pneumonia" where the distinction was not made between the types of lung involvement. It would be comparatively safe to entrust the decision between the application of cold, or warm, fresh air to the patient. The regulation of the food supply is important in both types of pneumonia. In the fibrinous inflammation, probably the entire seven or nine days might be experienced by a well nourished patient with no food intake with more surely favorable result. For the comfort of the family, at least, food must be administered. It becomes an object, however, to use as little as possible of the most nourishing, and easily digestible form of food, at as infrequent intervals as the exigencies of the case permit. Milk forms the ideal diet so long as tympanites. To this one staple may be added or substituted for it, simple soft foods such as junket, custard, one minute boiled eggs and soft milk toast. In the broncho-catarrhal pneumonias the patient requires from the first a supporting diet, but not more than is needed for the body requirements or can be digested. I have found it helpful to prescribe approximately two quarts of milk in the 24 hours and in addition, three times during the day, a one minute boiled egg and some agreeable addition, such as custard, finely chopped meat, mashed potatoes, lettuce, dry toast, or a little of any simple vegetable desired. This regime cannot be safely followed unless the intestinal canal is kept clean. An adequate supply of drinking water is an essential in the treatment of the pneumonias. Three pints or two quarts should be taken by the average adult patient during the twenty-four hours. A valuable aid to the favorable prognosis in both types of pneumonia is a thorough initial intestinal sweeping by means of castor oil repeated every second day throughout the course of the disease. Under

this regime, provided a sufficient supply of clean fresh air of the proper temperature be afforded, the vast majority of patients will require no other drug treatment from start to finish. Of the non-medicinal measures the care of the skin is one of the most important. Serous collections should be removed as soon as recognized. Every measure of treatment which interferes with the patient's rest of mind and body should be interdicted and the patient should have an interval of rest of at least three hours. After the initial intestinal housecleaning drugs should not be administered without definite indication. Aconite which in fibrinous pneumonia will quiet the over-acting heart, in broncho-catarrhal pneumonia is not safe. Alcohol is a cardiac muscle poison and a vasomotor paralyzant. "Purging, diet and bathing" were the watchwords of Aesklepiades and of a long succession of the Ancients. Add both cold and warm fresh air to this triad, and we have the outline of the most successful modern treatment of one of the most treacherous and dread forms of systemic and pulmonary disease.

DISCUSSION.

DR. S. SOLIS COHEN. Dr. Willson's division of the pneumonias into acute, lobar, croupous, catarrhal or inflammatory catarrhal is not quite complete, because the broncho- or catarrhal pneumonia must be subdivided according to the causative organisms. The treatment that would be suitable to a case of tuberculous broncho-pneumonia would be unsuitable to a case of influenza broncho-pneumonia. From a study of the statistics it is found that the average mortality of pneumonia in the last thirty years is in the neighborhood of 33%. Previous to the last thirty years it was about 25%. The measures used by our fathers were rather vigorous,—venesection and heavy doses of various drugs. The expectant treatment has not been as successful as even the misguided treatment of an earlier period. The one greatest advance of modern treatment is the exposure of the patient to fresh cold air. Excluding the sort of cases that come to the Philadelphia Hospital, having been exposed to all sorts of weather and with pathological conditions in the various organs, the mortality should be reduced to 20%. I believe we can do still better by the proper administration of quinine and other indicated measures.

SOME REMARKS ON A PHASE OF THE COCAINE EVIL IN PHILADELPHIA.

DR. J. NORMAN HENRY: Two cases are cited of young men seventeen years of age who acquired the habit of using cocaine by obtaining the drug in the streets of Philadelphia. My object in presenting the matter is to call attention to the accessibility of the drug; also to the fact that there is an effort made by the authorities to prevent its sale and to say that if our cases are reported to the Department of Public Safety measures will be taken to trace the selling of cocaine, secure evidence and the conviction of the sellers.

EXPERIENCES FROM A NINE YEARS' SERVICE IN SEVERANCE HOSPITAL, SEOUL, KOREA.

DR. J. W. HIRST: It is about thirty years since the first foreign doctor went into Korea. The city of Seoul with a quarter million of people knew nothing of surgery until 1888. It so happened that an American surgeon at that time was able to serve one of the members of the royal household. Twenty years later a hospital was established which was the first building in that country in which it was possible to accept patients and attempt to treat them. These are the conditions under which it was my privilege to enter nine years ago. The first operation ever done in the Seoul Hospital was for cataract. Facial blemishes the result of inflammatory diseases are frequent. I also have seen many cases the result of smallpox which in earlier days was so prevalent there. Today under vaccination there is a generation which does not know the disease. I have seen the largest series of empyemas in our service that I have ever read of anywhere else. Why it should be that empyemas are so prevalent I am not able to determine. Pneumonia is just about as prevalent in Korea as in this country. Appendicitis is almost unknown. The people are a rice-eating people and as a rule are not so subject to constipation as people in this country. They also are a people who do not chew their food. Typhoid fever is not very prevalent, but typhus fever becomes a great scourge.

There are some fevers which do not show the same characteristics as the conditions laid down in our text-books. The people in their acceptance of surgical aid in the first instance were afraid of a foreigner, but gradually a change has come. Not long ago we had two women living in the same room one of whom had ascites and the other a large abdominal tumor. The woman with the tumor was operated on and the other woman demanded that she also be operated on. So that the leaven is leavening the whole lump and one patient satisfactorily treated in a community will affect a large number. The Chinese practice of surgery is a series of needles, long and short, hot and cold and sometimes they are twisted like a small corkscrew, also triangularly. I removed a fibroid uterus the size of a child's head which had been treated by a native surgeon by passing needles through the abdominal wall and three needles were imbedded in it when removed. We have records of other cases in which a mass was removed from the body containing needles which had been forced into the tumor. The native doctors never attend labor cases. These were always in the hands of the old mothers in the homes. Prolapse of the uterus was treated by the insertion of a pledget of cotton soaked in alcohol. This was set on fire and the parts would be so badly burned that the uterus was held in place by contraction.

THE AMERICAN NEUROLOGICAL ASSOCIATION.

THIRTY-NINTH ANNUAL MEETING, HELD AT WASHINGTON, D.C.

MAY 5—7, 1913.

THE PRESIDENT, DR. PEARCE BAILEY, NEW YORK, IN THE CHAIR.

(*Continued from page* 23.)

LESIONS OF THE HYPOPHYSIS AND OF THE UNCINATE REGION, WITH THE RECORD, CLINICAL AND PATHOLOGICAL, OF A SERIES OF CASES.

DR. CHARLES K. MILLS AND WILLIAMS B. CADWALADER, Philadelphia: The paper is based on a

series of eight cases, two of which had been previously shown at another society, both before operation. Of the eight cases, one had presented uncinate without pituitary symptoms, necropsy in this case showing a large tumor involving the uncinate convolution, but extending into other regions of the cortex and subcortex. Of the other seven cases, three presented both pituitary and uncinate phenomena of a decided character. In the other four uncinate symptoms were absent, pituitary phenomena being pronounced. These phenomena, however, were of a mixed character, illustrating dyspituitarism rather than either hypo- or hyperpituitarism. In one of the cases with decided uncinate symptoms no lesion of the temporal lobe was discoverable In one case in which the patient died after operation, a necropsy showed a tumor involving the infundibulum and pineal gland and adjoining structures. In three of the operated cases pathological conditions of the hypophysis were found at the operation and confirmed by microscopical examinations of parts of the tissue removed. The authors are favorable to the fronto-orbital operation of Dr. Frazier for the exposure of the hypophysis. They believe it has distinct advantages over that of approach by the nasal route. Operation, however, gives successful results only in a limited number of cases. The authors of the paper discuss the manner of the production of the conjoint pituitary-uncinate symptom complex.

DR. J. RAMSAY HUNT, New York: Has Dr. Cushing had any cases of complete transitory blindness referred to him? I saw quite recently with Dr. Kinnicutt at the Presbyterian Hospital a case of pituitary disease in which there were no changes in the sella turcica. The man was placed on extract for two or three weeks. He returned to the hospital saying that he had been seized quite suddenly in the engine room, where he was working, with blindness which had lasted for four hours at the time Dr. Ramsey saw him. It seems that the blindness had something to do with the acromegalic signs.

DR. HARVEY CUSHING, Boston: In reply to Dr. Hunt's query, I would say that I have seen many cases of scotomata and these scotomata, as de Schweinitz has pointed out, are very apt to occur in the upper, outer quadrant. They are largely due to the fact that there is apt to be fluctuation of these symptoms. The gland swells against the chiasm which accounts for the loss of vision in the upper and outer quadrant. In cases which have passed beyond the stage to be cured by operation I would limit myself to a minor measure such as the mere relief of pressure rather than a large major operation such as the exposure of these structures through the frontal region. Such a lesion as a cyst is, of course, easily approached from below. The duration of the stay of the patient in the hospital from operation by the trans-sphenoidal route is comparatively a few days. It is not much more than a submucous resection of the septum, which the laryngologist not infrequently practices in the out-patient department. There have been 104 patients in my series and there have been 75 surgical cases. In 46 of the 75 there has been the trans-sphenoidal operation; in 22 subtemporal decompressions and 8 have had trans-sphenoidal and temporal decompressions. So that there have been 93 operations. There have been 9 fatalities, about 10%. Most of these fatalities occurred in the early series. Thus of these fatalities most of them were cases which today we would recognize as inoperable or would adopt a simple measure. Two of them were simple subtemporal decompressions with very large tumors. I think the operation merely takes part of the growth. It is inconceivable that one can remove the entire growth. If the growth is accessible from below I think it should be approached from below. What we want to do is to make room for enlargement of the growth. We cannot remove it entirely. I feel that this measure to which Dr. Frazier has again called attention, and which was first advocated by Hartley and subsequently by Krause, is in Dr. Frazier's skilful hands a measure that very likely can often do good, but it is one which I should feel very badly to have come into general use.

HUNTINGTON'S CHOREA: A STUDY IN HEREDITY.

DRS. SMITH ELY JELLIFF, ELIZABETH B. MUNCEY, and C. B. DAVENPORT, New York: In the last ten or twelve years we have been able to get together enough information to show that one could group these cases of Huntington's chorea into four large groups. For the last four years Dr. Munsey has spent all the time working on this material, with the result that practically all of the old family Huntington chorea in this country has come from five distinct families. The names of these families are now fairly well known. It has taken thirteen years to collect the material, and it will take five or ten years more to present complete analyses of what the material shows us. At the present time it confirms the statement frequently made that Huntington's chorea does not skip a generation. If any individual is free from the disease that individual's offspring will be free. Once the line of descent is free, always free. If one individual does not have the disease it means that he does not have it in his germ cells and hence cannot transmit it. The practical application of this rule to eugenics is diminished by the fact that Huntington's chorea does not come on until late in life. As to marrying, each member feels that he may escape and if he considers the matter at all runs the chance. In a person whose onset is relatively late in life it is to be expected that the parents will often die before the disease is due to develop in them. In certain of the families one will find the cropping out of the Huntington chorea, nothing in the antecedent heredity and later it turns out that there was illegitimacy, so that occasionally comes into these charts to explain the law of Mendelian dominance.

THE VALUE OF X-RAY ANALYSIS OF THE GASTRO-INTESTINAL TRACT IN SOME TYPES OF SO-CALLED FUNCTIONAL NERVOUS DISORDERS.

DR. L. PIERCE CLARK and DR. ARCHIBALD H. BUSBY, New York: In a careful and complete x-ray analysis of eight cases of idiopathic epilepsy associated with severe gastro-intestinal disorder the authors found some form of abnormal position of the viscera (ptosis) which they judged to be pathological in each case and which they connected up with some of the clinical symptoms in the individual case. They outlined a system of physical therapeutics to overcome the gastro-intestinal ptosis which had been of functional benefit. They advised a routine x-ray examination in every case of genuine epilepsy with severe indigestion as an aid in exact diagnosis and treatment of the indigestion and the convulsive disorder itself.

DISCUSSION.

DR. D. J. MCCARTHY, Philadelphia: I can support what Dr. Clark has said in his paper from an extensive study of the past year on not only this group of cases but the entire group of functional cases that come to the neurologist's office. Wherever there has been suspicion of gastro-intestinal involvement, I have had x-ray tests made. The percentage of cases of what has been considered the functional neuroses in which one gets lesions, not only equal to those shown in Dr. Clark's group of cases, but even more intense, is surprising. Among those cases operated on, where they have been well selected, uniformly excellent results have been obtained.

DR. HERMAN H. HOPPE, Cincinnati: I believe that, while the study of this condition is very interesting, before the profession can come to any conclusion as to the therapeutic results a larger number of cases must be studied. There is, on the part of a great many patients an objection to having an operation of a serious character done for a primary condition that has existed for a long time. Some practitioners have found the straight front corset to answer nearly all purposes. One case of epilepsy occurs to me as presenting complete recovery following operation.

DR. J. W. MCCONNELL, Philadelphia: I am not interested in the surgical side of these cases, believing, as I do, that the matter of internal therapeutics has not been sufficiently worked out. There is too much tendency to go ahead and carve up these patients. For several years I have been working very carefully at the condition of displacement of the abdominal organs with direct reference to their effect upon the nervous system and incidentally upon the general digestion. In the matter of treatment of these cases I have largely been depending upon abdominal supports made of very heavy adhesive plaster. Up to the present time I have had certainly 300 or more cases in which there has been very distinct relief of the gastro-intestinal symptoms and a very definite improvement to the peculiar toxic condition which those patients naturally get into.

DR. C. A. L. REED, Cincinnati: Having had a number of these cases referred to me, notably by Dr. Hoppe and Dr. Langdon, I have had some very satisfactory results following surgical restoration of these displacements. It is no more possible to reduce these displacements by medicines than it is to reduce a dislocated elbow with a dose of pills. I have not infrequently applied bandages, trusses and so on with benefit, temporary or partial. But that that treatment can by any possibility restore the patient to normal condition is something not for a moment believable.

DR. EDWARD B. ANGELL of Rochester, N. Y., said that as soon as you have corrected the intestinal fermentation that distends the bowel and causes the pressure, permanent relief will be afforded the patient. He has many times had the pleasure of taking off the supports and leaving the patient much more comfortable.

THE INTERPRETATION OF DIFFERENCES IN MAMMALIAN BRAIN WEIGHT IN TERMS OF THE STRUCTURAL ELEMENTS.

DR. HENRY H. DONALDSON, Philadelphia, Pa.: Among different species of mammals of increasing size and increasing brain weight, present information justifies the general conclusion that the larger brains are composed of the greater number of structural elements.

Within a given species, however, the question arises whether the number of elements in the large brain is really greater than in the small brain, or whether we are to regard the large brain as composed of the same number of structural elements as the small brain—the size of the elements accounting for the difference in gross size.

In man we find differences of 10 to 20% in the brain weights among the two sexes and at different ages after maturity. There is about the same range of difference in brain weight in the rat—the brain of the very large wild Norway being about 20% heavier than that of the corresponding domesticated albino.

Using the rat as the species for study, the following relations have been found: The brain weight is alike in the two forms (wild Norway and albino) during the first three weeks of life. The relative weights of the divisions of the brain are alike in the two forms, despite the difference in absolute weight. The percentages of water in the several subdivisions are similar in both forms. The observed number of medullated fibres in one peripheral nerve (nervus peroneus) is the same in both forms. The size of the cell bodies in several localities is found to be greater in the Norway than the albino. Finally, as the weight of the brain is closely correlated with the body size, it is possible to produce from the same litter, by modification of diet, animals with brains of different absolute sizes. These brains presumptively contain the same number of neurones.

All this points to the general conclusion that in the case of the rat the differences in the size of the brain are due to differences in the size of the elements.

If we apply these tests to man, we find that so far as the observations exist the results are similar.

It is concluded, therefore, that within a given species of mammals—illustrated by man and the rat—the difference in the absolute weight of the brain either within the same sex, or when the two sexes are compared, is mainly due to differences in the size of the constituent elements.

DISCUSSION.

DR. E. E. SOUTHARD, Boston: As to the question of agenesia versus aplasia connected with the dementia precox brains which I have been studying, I find that the various persons with whom I have talked felt that, for instance, in a small brain in dementia precox patients there might well be agenesia. If these conclusions of Dr. Donaldson be correct, it might be that the small brain of dementia precox, like the small heart or small aorta, is an instance of aplasia or hypoplasia rather than agenesia. Agenesia should mean a condition in which certain elements are lacking; while aplasia should mean an alteration in the negative direction, in the size or other qualities of the cells. There are no gradations in respect to agenesia; it is either genesis or agenensis. We should be careful how we speak of the brains as examples of agenesia. If we get used to employing the word agenesia, we will come to think that dementia precox means an absence of certain elements; whereas, it may not at all mean such. In fact, the evidence would seem to the speaker to be rather that the dementia precox brains are in pos-

session, perhaps, of their normal quantity of elements. Many counts would have to be made to make this point good.

DR. HENRY H. DONALDSON, Philadelphia: I have recently been over a short series of brains belonging to deficient and defective children from the Vineland, N. J., institution, and, separating them into their larger divisions of cerebral hemisphere involvement, etc., and taking the weights of these, I was rather surprised to find that the weight relations were those of the normal brains, in most cases. My own interpretation, in fact, is in favor of the view that the elements composing these brains are small in size, rather than deficient in number.

EXPERIMENTAL STUDY OF INTRANEURAL INJECTIONS OF ALCOHOL.

DR. ALFRED GORDON, of Philadelphia: The experiments were carried out on dogs with the object of determining the effect of alcohol on motor and sensory or mixed nerves. The facial infraorbital and sciatic nerves were exposed by dissection during anesthetization with chloroform and 5 minims of 80% alcohol were injected. The first series of dogs were kept alive nine days, the second series twenty-nine days. Not only the peripheral nerve-trunks, but also the nuclei (Gasserian and spinal) were examined microscopically. The facial nerve was traced through its course in the medulla. The histological and clinical findings were then given in detail. The conclusion to which I have arrived is, that while very little or no damage is done to a motor nerve, the sensory and mixed nerves present very little resistance to the effect of alcohol. Irreparable damage may be done in the latter case, but in the case of motor nerves restoration of function was almost the rule. Illustrations of the histological findings were appended.

DR. ISRAEL STRAUSS, of New York: I can in a way bear witness in confirmation of the author's results. Two years ago I saw a patient into whose sciatic nerve there had been an injection of alcohol, the result of which injection was a complete paralysis of the muscles of the leg. This paralysis lasted over one year; and, in addition to said paralysis, there developed trophic ulcers upon the foot, also a marked edema. There was at the end of a year, almost no sign of restoration of the power of those muscles and the trophic ulcers, while they would heal, would appear in new regions. It was his opinion that probably the trophic condition of the foot put that patient in such jeopardy that amputation might eventually be necessary.

DR. EDWARD B. ANGELL, Rochester, N. Y.: I would inquire whether Dr. Gordon had examined the sciatic nerve after the injection of a saline, rather than alcohol. This would be rather interesting because such injections are now made by men who are using injections for the relief of neuralgias.

DR. PETER BASSOE, Chicago: I consider it my painful duty to tell about an experience I had with an injection in a case of sciatica, not with alcohol, but with salt solution, a method which I have used a great deal, and which I am still using. In the summer of 1908 I injected a number of cases at the Cook County Hospital of Chicago; and a number of cases were injected by the internes, both in the speaker's service and in that of his colleagues. There was one typical case of sciatica injected by an interne; and within, say half a minute, or at most within one minute, a complete sciatic paralysis was produced. The needle was introduced through the buttocks rather high up, using the landmarks advised by some French writers and drawing the line from the conjunction of the coccyx and sacrum over to the upper border of the trochanter. The patient was a nervous man; he did not like the feeling of the needle and jumped. Possibly that had something to do with it; but at any rate the paralysis and loss of sensation were instantaneous. I at once examined him and found there was complete paralysis of all the muscles below the knee and loss of all forms of sensation. The man's sciatica was cured and never returned. The patient still had a complete paralysis of those muscles.

DR. ALFRED GORDON, Philadelphia: In reply to Dr. Angell's query regarding my personal experience in injecting saline solution, I have had quite a number of cases that have been relieved, but not cured, by physiological salt solution. I have tried in two cases the injection of plain distilled water and have obtained equal results as with the saline solution. I have never observed such a danger as Dr. Bassoe has mentioned from injecting saline solution into the sciatic nerve.

(To be continued.)

Book Reviews.

Artificial Parthenogenesis and Fertilization. By JACQUES LOEB, member of the Rockefeller Institute for Medical Research. Originally translated from the German by W. O. REDMAN KING, B.A., assistant lecturer in zoölogy at the University of Leeds, England. Supplemented and revised by the author. Chicago, Ill.: The University of Chicago Press. 1913.

This translation of Loeb's book appearing in 1909, entitled *Die chemische Entwicklungserregung des tierschen Eies,* has been amplified and enlarged by the author in consequence of new observations made since its publication. The investigation concerns itself with the possibility of the development of an embryo from an unfertilized egg, and allied questions. The book is a monument of painstaking chemical and physiological research, and possibly paves the way toward an understanding of the fundamental problem of life and its method of production. If the thesis which the author sets himself to prove is finally established, it may well prove the beginning of an entirely new conception of biological problems and lead to a reconstruction of certain very generally accepted postulates. Much, naturally, remains to be done before this result can be attained. In the meantime Loeb has certainly established facts which may no longer be ignored.

THE BOSTON

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STANDARDIZATION OF HOSPITAL RECORDS.

On another page of the Journal we print the report of the committee on the standardization of hospitals, presented before the recent meeting of the Clinical Congress of Surgeons in Chicago. In addition to sending to every hospital in the United States and Canada a copy of this report, it is the intention of the committee also to send a leaflet illustrating the practical working of the plan and giving various facts regarding its application and usefulness.

Should the simple suggestions in this leaflet be adopted, as we hope they will be, by the great majority of hospitals, we can see the possibility of a very far reaching effect. In a way it marks the beginning of real clinical science, for each operation or each attempt at any other form of curative treatment in any hospital is an experiment. It seems curious that these experiments should not be recorded in most hospitals. Often the facts thus obtained would be of the greatest scientific value. We must record all cases, since it is impossible to predict beforehand just which cases will be most important; we do not know today what may be of essential value tomorrow. The majority of hospitals nowadays have some sort of record system referring to the condition of their cases while in the hospital, but the real test of the value of operations and other forms of clinical treatment often comes after the expiration of years, long after the patient has left the hospital doors. The Massachusetts General Hospital endeavors by a method similar to that suggested in the leaflet, to trace its cases as a routine, and we feel that the adoption of such a system may well be undertaken by other hospitals, so that they will know whether "their product is sound or damaged." Even if it means the expenditure of much money it may be actual economy, since to expend money for poor results is as wasteful as any other form of extravagance.

It seems probable if the hospitals of the United States should take up this system in a uniform way, that it would lead to a more direct method of eliminating some of the modern surgical abuses than will even the formation of the American College of Surgeons. As far as statistics are concerned, the ordinary hospital morbidity report is nearly useless. It would be much better for the statistician to make his own statistics from a series of abstracted cases than by the method now in vogue. For instance, in the usual report, a patient operated on at the same time for two diseases, such as fibroid of the uterus and adenoma of the thyroid, is classed in the statistics under both of these operations. In reality, the risk of the two performed at the same time is not the same as the risk of either one. In these days it is very common for two or three organs to be removed at the same operation, and we think that the exuberant growth of modern surgery is likely soon to make it necessary to compare the statistics of different operators on this basis.

Correspondence regarding the plan should be addressed to Dr. E. A. Codman, chairman of the committee, 227 Beacon Street, Boston.

MEDICAL LEGISLATION. THE REGISTRATION OF DRUG-STORES IN MASSACHUSETTS.

On January 1, 1914, there went into effect throughout this Commonwealth an act, passed by the legislature last year, requiring the registration of all drug-stores in the state. This law was aimed primarily at establishments which, under the name of drug-stores, existed chiefly for the sale of alcoholic liquors. Secondly, it was expected to prove a means of controlling much of the clandestine and illicit sale of alcohol, morphine, cocaine, and other habit-forming drugs which has been surrep-

titiously carried on by some ostensibly legitimate drug-stores.

The registration of pharmacists in Massachusetts has for some time been on an ethical basis in the hands of the State Board of Registration in Pharmacy. This board will now in addition control the registration of all drug-stores, and will have the power at any time to revoke the license of any such establishment found guilty of evading or transgressing the pharmacy statutes of the state. Any store, in which there is not a registered pharmacist or assistant pharmacist, will be forbidden to sell any drug except a few harmless substances enumerated in a specified list. The board will have full power to investigate all cases and inflict fines for all infractions.

In a statement to the public press, the secretary of the State Board of Registration in Pharmacy has said, relative to the new law:—

"It has been requested that the Board of Registration in Pharmacy state what is expected to be gained by the enforced registration of drug stores. In answer to such inquiry, the members of the board say that they expect to have on hand a complete personnel of every drug store in the state on Jan. 1, 1914, and each year thereafter.

"They expect gradually to eliminate all apologies for drug stores created to do a mercantile business seven days in the week when other stores are obliged to close on Sundays.

"They expect to eliminate certain drug stores capitalized by ex-liquor dealers for the purpose of doing an illegal liquor traffic in no-license localities.

"They expect to assist in stopping the illegal sale of narcotics by having the power to refuse a permit to such drug stores as violate the law in this manner.

"The board feels that the enforcement of this law will bring about a better condition of the business of pharmacy throughout the state, and that the public health will be better protected in having skilled pharmacists conduct the business."

There seems every reason to believe that this new measure is a judicious piece of medical legislation, and that its enforcement should do much to raise the standards and prevent abuses of the sale of drugs in Massachusetts.

AN IMPORTANT DISCOVERY.

ON Dec. 27, 1913, Dr. William David Coolidge, of New York, demonstrated, before a meeting of physicians, physicists, and radiographic experts, his new method for the generation, control, and application of Roentgen rays. In brief, his invention consists of a tube in which both anode and cathode are made of tungsten, and by means of which the penetration and dosage of rays may be most accurately gauged. The advantages claimed for it are as follows:—

"(a) The intensity and the penetrating power of the Roentgen rays produced are both under the complete control of the operator, and each can be instantly increased or decreased independently of the other.

"(b) The tube can be operated continuously for hours, with either high or low discharge currents, and as either a hard or a soft tube, without showing an appreciable change in either the intensity or the penetrating power of the resultant radiations.

"(c) It permits of the realization of intense homogeneous primary Roentgen rays of the desired penetrating power."

It seems that this discovery is likely to prove of great importance in the medical use of Roentgen rays, and a more detailed and technical account of it and of Dr. Coolidge's work will be given in a subsequent issue of the JOURNAL.

MEDICAL NOTES.

INCIDENCE OF POLIOMYELITIS IN NOVEMBER.—The weekly report of the United States Public Health Service for Dec. 26, 1913, states that during the preceding month of November, 38 cases of poliomyelitis were reported in Massachusetts, 14 in California, and 13 in Ohio, these being the three states with the highest incidence of the disease. Of the Massachusetts cases, 10 were in Middlesex, and 8 each in Suffolk and Worcester counties respectively.

SUICIDES IN 1913.—Report from Chicago states that the number of suicides in the United States in 1913 was 13,106, as against 12,981 in 1912. Of the suicides in 1913, 8602 were males and 4504 females. Among professional men, the largest number of suicides was 34, among physicians.

TWO CENTENARIANS.—Mrs. Elizabeth Coburn, who died last week at Guys Mills, Pa., is said to have been born in September, 1813.

Lemuel Coffin, an ancient mariner, died last month at Sailors' Snug Harbor, Staten Island,

N. Y., at the supposed age of 101 years, 5 months. He had been an inmate of the institution for 33 years.

RADIUM RESEARCH LABORATORY.—Report from Denver, Colo., states that on Dec. 26 the National Radium Institute secured in that city a site on which will be erected a laboratory for radium research under the direction of the United States Bureau of Mines.

RADIUM DEPOSIT IN PENNSYLVANIA.—Report from Philadelphia on Dec. 27 announces the discovery near Mauch Chunk, Pa., of an extensive deposit of carnotite, a radium-bearing ore. Assayists have stated that this ore contains 2% of uranium oxide, from each ton of which 108 milligrams of radium can be extracted.

LONDON DEATH-RATES IN NOVEMBER.—Statistics recently published show that the total death-rate of London in November, 1913, was only 13.5 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 19.5, in Finsbury, a crowded central quarter, and the lowest was 9.1, in Lewisham, a populous southern suburb.

NEW METHODS TO INCREASE FRENCH BIRTH-RATE.—To encourage the raising of children in France, it is proposed to exempt from taxation all families of more than four, and to give each married voter an additional vote for his wife and for each minor child.

A PARISIAN GASTROPAGUS.—Report from Paris on Dec. 25 states that a case of Siamese twins has recently been brought to that city for operative surgical separation. The infants, which are a month old and both females, are joined by a fleshy band between their abdomina.

BOSTON AND NEW ENGLAND.

WORK OF THE BOSTON CHILD HYGIENE DIVISION.—The recently published report of the division of child hygiene of the Boston Board of Health shows that during the past year the city nurses have made 33,392 visits on 18,438 newborn babies. Of these, 14,065 were bottle fed, 2766 were breast fed, and 1607 were fed on both breast and bottle. The report further comments on the cordial relations and coöperation between the board and the 12 milk stations of the Boston Milk and Baby Hygiene Association.

ACTION AGAINST TWO MASSACHUSETTS CITIES.—At the instance of the Massachusetts State Board of Health, a writ of mandamus was issued on Dec. 30 by the Superior Court, directing the city of Gloucester to prepare plans for a hospital for patients with diphtheria, smallpox, tuberculosis, and other diseases dangerous to the public health. Request has been made for a similar writ against the city of Lowell. The building of such hospitals by cities of over 20,000 inhabitants was required by a statute of the year 1910. Gloucester and Lowell have hitherto failed to comply with this requirement, though specially requested by the State Board of Health to do so in 1911 and 1912.

A CENTENARIAN.—Mrs. David C. Chamberlin, who died on Dec. 28 at Melrose, Mass., was born in Lexington, Mass., on Sept. 10, 1813, the eldest of a family of eight children. She was one of the school-children who in 1825 strewed flowers in the path of General Lafayette when he visited Boston, and is said to have been kissed by the general on that occasion. She was married in 1836, but has been a widow since 1884. She is survived by three daughters, one son, three grandchildren, and nine great-grandchildren.

NEW YORK.

PROGRESS IN SANITATION.—In severing his connection, of twenty-six years, with the Department of Health, Dr. H. M. Biggs, general medical officer, addressed a communication to Commissioner Lederle in which he reviews the advances made in sanitation in the city during this period. In the course of it he says: "A complete and remarkable transformation has taken place in the sanitary administration of New York. No one twenty-five years ago could have anticipated the wonderful progress which has been made in preventive medicine. This progress has been possible only through the scientific developments of this period, especially in bacteriology and in the discovery of new curative and protective methods. But the Department of Health of New York City has set the pace, for this and other countries, in the prompt practical application of the new achievements of science and the lessons of experience. I do not believe the citizens of New York fully realize how far in advance of most of the great cities of the world our administration of the health service has been. During frequent visits to

Europe in the last twenty years I have made a careful study of the work of the health authorities in Great Britain, France and Germany, and have been greatly impressed with the fact that they were but slowly, and often very incompletely, adopting the measures which had proved most successful here. This fact has been long recognized in Europe, and the authorities there constantly look to New York for suggestions and directions in new methods in sanitary work. A glance backward over this quarter of a century shows a prompt and complete readjustment of the administration of the department to meet the new and more precise conception of the infectious diseases which the new bacteriology created."

LIFE EXTENSION INSTITUTE.—On Dec. 29 a "Life Extension Institute" was incorporated in New York, for the purpose of prolonging human life by examining periodically the physical condition of insurance policyholders and other individuals, and by disseminating life-saving knowledge. Its president is Mr. E. E. Rittenhouse, of New York. Mr. William H. Taft is chairman of the board of directors, and Dr. William C. Gorgas consultant in sanitation and hygiene. The chairman of the hygiene reference board is Prof. Irving Fisher, of Yale, and among other members of this board are Dr. George H. Simmons, of Chicago; Dr. William J. Mayo, of Rochester, Minn.; Dr. William H. Welch, of Baltimore; and Dr. Harvey W. Wiley.

"The Institute plans to make arrangements not only with life insurance companies, but with schools, industrial establishments, clubs and individuals, as well as to coöperate with hygienic agencies and movements of all kinds, including those connected with the tuberculosis movement, the social hygiene movement, the eugenics movement, the public health departments, federal, state and municipal, and even popular gymnastics and sports. It will establish laboratories in the larger cities for analysis of blood, urine, etc., of the persons examined. Its central office will be at 25 West 45th Street, New York City.

"The Institute is fashioned somewhat after the Model Homes Associations, that is, it will be a philanthropy conducted on a self-supporting basis. It will charge a small fee for its work, and the persons who furnish the capital with which to start this Institute have agreed that two-thirds of any profits which there may be beyond five per cent. on the capital invested will be devoted to extending its public usefulness.

"A striking feature of the scheme is that all concerned are benefited—the insurance, companies, the policyholders, the individuals examined, and the public.

"This newly invented institution is the result of a sentiment which has been growing several years among life insurance companies to reduce their losses from life-waste, just as the fire insurance companies have for a long time striven to reduce their losses from fire-waste.

"The Hygiene Reference Board will aim ultimately to settle scientifically, so far as possible, the many disputed questions of personal hygiene. As yet personal hygiene has been neglected, especially in America, and "how to live" is a debatable question even among experts. The board will secure the coöperation of savants throughout the world to solve such fundamental problems as how best to ventilate our houses and how best to clothe and feed our bodies. In this way it is hoped to steer a scientific course between the Scylla of foolish fads which beguile the unwary and the Charybdis of conventional ways of living, which most of us accept blindly because others have accepted them before us."

Current Literature

MEDICAL RECORD.

DECEMBER 20, 1913.

1. HELD, I. W. *Aortitis Syphilitica.*
2. BARRETT, C. W. *The Carcinoma Question as It Pertains to the Uterus.*
3. DAVIDSON, B. *Thirty-three Cases of Thyroid Disease.*
4. BAKER, S. J. *School Medical Inspection in New York City.*
5. DAVIS, W. S. *A Comparison of Methods for the Diagnosis of Tuberculosis by Sputum Examinations.*
6. PETERY, A. K. *Some Early Symptoms of Mental Disturbances.*
7. *LUTTINGER, P. *Vaccine Therapy of Pertussis.*
8. GRIFFIN, E. A. *Turbinotomy.*

7. Luttinger reports results obtained with vaccine therapy in ten cases of pertussis. The micro-organism used resembled very closely that described by two Germans as the cause of whooping cough. The writer observed a reduction in severity and a shortening in duration of the disease after inoculation. He says that pertussis vaccine should be given in much larger doses and at shorter intervals than are generally recommended. Prophylactic inoculation was apparently completely successful in one of the writer's cases. The dose recommended for this purpose is fifty million. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

DECEMBER 20, 1913.

1. LEPINE, R. *The Question of Diabetes at the International Congress of Medicine in London.*
2. ROE, J. O. *Orbital Abscess from Infection Through the Ethmoid.*
3. MULLAN, E. H. *Epilepsy.*
4. BROWN, C. P. *The Bacteriology of Pyorrhea Alveolaris.*

5. *CYRIAX, E. F. *The Mechanotherapeutics of Acute Croupous Pneumonia.*
6. RUBENSTONE, A. I. *Cerebrospinal Fluid and Its Diagnostic Significance.*
7. GEHRING, E. W. *Pellagra in Maine.*
8. WAGHENHEIM, F. L. *Atypical Infantile Paralysis.*
9. HOFFMAN, F. L. *The Cancer Mortality of Greater New York.*

5. Cyriax attacks the subject of croupous pneumonia from the mechanical point of view. He considers reflex contraction of the muscles of respiration the most important cause of respiratory distress in this disease. The effect of these persistent contractions is limitation of respiratory movement with consequent pulmonary congestion, insufficient oxygenation, cardiac strain, etc. The object of manual treatment is to increase respiratory movements by diminishing muscular contraction and inflammation in lung and pleura, and to improve the patient's general condition. The manipulations and exercises recommended are vibrations, active respirations, subdiaphragmatic suction, friction on the posterior spinal and the intercostal nerves, abdominal petrissage. Treatments should be given twice a day, and in bad cases three times, each sitting averaging half an hour. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

DECEMBER 20, 1913.

1. *ROSENOW, E. C., AND HEKTOEN, L. *Treatment of Pneumonia with Partially Autolyzed Pneumococci.*
2. *RIESMAN, D. *Entericoid Fever—Febris Entericoides.*
3. BURNS, N. B. *The Treatment of Hemoptysis in Pulmonary Tuberculosis.*
4. CRASTER, C. V. *Ship-Borne Cholera. The Sea as a Factor in the Transmission of Asiatic Cholera.*
5. KAPLAN, D. M. *The "Wassermann-Fast Tabes": a Serologic Precursor of Taboparesis.*
6. DANDY, W. E., AND BLACKFAN, K. D. *An Experimental and Clinical Study of Internal Hydrocephalus.*
7. BASSLER, A. *Some Recent Conclusions on Abdominal Roentgen Ray Work.*
8. FRAUENTHAL, H. W. *The Treatment of Paralysis of Anterior Poliomyelitis.*
9. GERAGHTY, J. T., AND PLAYGEMEYER, H. W. *The Practical Importance of Infantile Kidney in Renal Diagnosis.*
10. DIETRICH, H. *Heliotherapy, with Special Reference to the Work of Dr. Rollier at Leysin.*
11. HEAD, J. *Treatment of Loose Teeth Due to Inflammatory Degeneration of the Gums and Alveolar Process.*
12. BOOT, G. W. *A Case of Congenital Myotonia.*
13. COERR, F. D. H. *Enteroliths. Review of Literature with Report of Case.*
14. ROSSITER, P. S. *An Unusual Combination of Conditions Producing Appendicitis.*
15. MACE, L. S. *Combined Oxygen and Nitrogen Compression in Early Lung Hemorrhage.*

1. Rosenow and Hektoen have found that when virulent pneumococci are suspended in physiologic salt solution the substances on which their resistance to phagocytosis depends pass into solution. The soluble part at a certain stage of autolysis is highly toxic and has little immunizing action, while the insoluble remnants have well marked antigenic properties and practically no toxic effects. The protective value of detoxicated pneumococci has been found to be greater than that of heat killed pneumococci. The authors have, therefore, treated pneumonia patients by subcutaneous injection every day till the temperature fell, with an injection of virulent pneumococci from which the soluble and toxic parts have been removed. The dose has been from ten to twenty billion at a time. The type of case treated has been of the worst, *i.e.* the alcoholic in hospital practice, and yet the mortality has been greatly reduced and the treatment seems of distinct value.

2. Riesman believes that the term "typhoid fever" as commonly used by physicians includes more than one variety of disease, and that only that in which typical serologic and cultural tests are obtained, should be called typhoid fever. To the others the term entericoid fever might be applied, meaning that this type was due to different strains of the paratyphoid group and to others morphologically similar; the source of infection is chiefly food derived from unhealthy animals.

3. Burns has given up the use of morphia and opium in pulmonary hemorrhage because of its depressing effect and danger of subsequent pneumonia, and in its place has substituted purgation by depletion by use of magnesium sulphate. No bad results have followed its immediate use, such as vomiting, and the control of hemorrhage has been marked. [E. H. R.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

NOVEMBER 1, 1913.

1. MUSSER, J. H., JR., AND KRUMBHAAR, E. B. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
2. PEARCE, R. M., AND PEET, M. M. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
3. GHOREYEB, A. A., AND KARSNER, H. T. *A Study of the Relation of Pulmonary and Bronchial Circulation.*
4. KARSNER, H. T., AND GHOREYEB, A. A. *Studies in Infarction.*
5. LONG, E. R. *The Purines and Purine Metabolism of Some Tumors in Domestic Animals.*
6. MCPHEDRAN, W. F. *On the Hemolytic Properties of Fatty Acids and Their Relation to the Causation of Toxic Hemolysis and Pernicious Anemia.*
7. WOLLSTEIN, M., AND MELTZER, S. J. *Pneumonic Lesions Caused by Bacillus Megatherium.*
8. WOLLSTEIN, M., AND MELTZER, S. J. *The Character of the Pneumonic Lesions Produced by Intrabronchial Insufflation of Virulent Streptococci.*
9. ROBINSON, G. C., AND AUER, J. *Disturbances of the Heart-beat in the Dog Caused by Serum Anaphylaxis.*
10. *NOGUCHI, H., AND COHEN, M. *Experiments on the Cultivation of So-called Trachoma Bodies.*
11. CHURCHMAN, J. W., *and* HERZ, L. F. *The Toxicity of Gentian Violet and Its Fate in the Animal Body.*
12. *GILLESPIE, L. J. *The Comparative Viability of Pneumococci on Solid and on Fluid Culture Media.*
13. JOBLING, J. W., AND STROUSE, S. *Studies on Ferment Action.*
14. JOBLING, J. W., AND STROUSE, S. *Studies on Ferment Action. IX. A Note on the Relation Between Lysis and Proteolysis of Pneumonia.*

6. McPhedran comes to the conclusion from his work with fats that there is no support for the theory that toxic hemolysis results from the liberation of hemolytic fatty acids. In certain pathologic conditions associated with hemolysis, he was unable to find on analysis any evidence for the existence of fatty acids more toxic than the common oleic acid which is constantly being set free by hydrolysis from common fat in health.

10. Noguchi and Cohen describe the cultivation from cases of conjunctivitis accompanied by the so-called trachoma bodies inclusions of an organism resembling the various important stages of the tra-

choma bodies. Animal inoculations were not successful.

12. Gillespie studied the viability of the pneumococcus on artificial culture media. He found that it required a smaller number of pneumococci to start a growth on agar than in broth. The explanation does not seem to depend upon chemical differences, but upon physical differences in the two kinds of media. [R. I. L.]

DECEMBER 1, 1913.

1. *MANWARING, W. H., AND BRONFENBRENNER, J. *On Intraperitoneal Lysis of Tubercle Bacilli.*
2. *MACCALLUM, W. G., AND VOGEL, K. M. *Further Experimental Studies in Tetany.*
3. ROUS, P., AND LANGE, L. B. *The Characters of a Third Transplantable Chicken Tumor Due to a Filterable Cause. A Sarcoma of Intracanalicular Pattern.*
4. KRUMBHAAR, E. B., MUSSER, J. H., JR., AND PEARCE, R. M. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
5. LONGCOPE, W. T. *The Production of Experimental Nephritis by Repeated Proteid Intoxication.*
6. ROBINSON, G. C. *The Relation of Auricular Activity Following Faradization of the Dog's Auricle to Abnormal Auricular Activity in Man.*
7. COHN, A. R. *The Effect of Morphine on the Mechanism of the Dog's Heart after Removal of One Vagus Nerve.*
8. COHN, A. E., AND LEWIS, T. *The Predominant Influence of the Left Vagus Nerve upon Conduction between Auricles and Ventricles in the Dog.*

1. Manwaring and Bronfenbrenner found that tubercle bacilli injected into the peritoneal cavities of tuberculous animals rapidly disappear from the peritoneal fluids, while persisting in the peritoneal fluids of normal control animals. This intra-peritoneal lysis seems to be due to specific changes in the fixed peritoneal cells of the tuberculous animal.

2. MacCallum and Vogel have continued their researches on tetany and have brought forward additional experimental evidence tending to show that tetany is closely dependent upon a disturbance of the calcium content of the blood. [R. I. L.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

DECEMBER, 1913.

1. *BARKER, L. F., AND GIBBES, J. H. *On the Treatment of Leukemia with Benzol.*
2. *BOGGS, T. R., AND GUTHRIE, C. G. *Bence-Jones' Proteinuria in Leukemia: A Report of Four Cases: The Effect of Benzol on the Excretion of the Protein.*
3. *KELLY, H. A., AND NEIL, J. C. *Cauterization of "Inoperable" Carcinoma of the Cervix of the Uterus.*
4. *BLOOMFIELD, A. L., AND HURWITZ, S. H. *Tests for Hepatic Function: Clinical Use of the Carbohydrates.*
5. *HERWITZ, S. H., AND BLOOMFIELD, A. L. *Tests for the Hepatic Function. Lactose Tolerance as Influenced by the Liver Necrosis of Chloroform Poisoning.*

1. Barker and Gibbs describe in brief the cases of leukemia which have been treated with benzol by various investigators in the past and the results. The writers add one more case to this list, which they report in great detail. It is important to note that there was a positive Wassermann in this case. They emphasize the fact that benzol does possess dangerous toxic properties; second, that its chemical effects are not yet clearly understood; and third, that the greatest care should be exercised in its administration. No patient should be given benzol unless he can be kept under strict observation. The white cells fell in this case from 345,000 Nov. 24, 1912, to 6,800 April, 1913, with a marked improvement in all the symptoms.

2. This paper, as stated in the title, describes in great detail four cases of Bence-Jones' proteinuria.

3. Kelly and Neil believe that the extensive radical operation offers the greatest hope of absolute cure in patients suffering from cancer of the cervix uteri; the percentage of operability has gradually increased with the adoption of the radical abdominal operation; an exploratory operation is occasionally necessary. In advanced cases a preliminary curettage and cauterization is advisable. They describe the details of several cases and the technic.

4. In a paper describing tests for hepatic function, the writers find sugars to be theoretically unsatisfactory as tests for liver insufficiency and that the value of these tests from a practical point of view has been neither proved nor disproved.

5. The same writers as above mentioned describe in detail their experiments and investigations and results in animals on lactose tolerance as influenced by the liver necrosis of chloroform poisoning. [J. B. H.]

THE LANCET.

DECEMBER 6, 1913.

1. SMITH, B. P. *The Value of the Clinical Polygraph in Certain Cardiac Disorders.*
2. SHAW, H. B., AND COOPER, R. H. *On a Change Occurring in the Pelvis in a Case of Prepuberal Atrophy of the Testicles.*
3. COCKIN, R. P. *Treatment of Yaws by Intramuscular Injections of Salvarsan.*
4. HANN, R. G. *Chronic Polyorrhomenitis (Multiple Serositis) Simulating Intrathoracic Growth.*
5. WILSON, W. *Some Causes of Disappointment Following Removal of Tonsils and Adenoids.*
6. TYLECOTE, F. E. *A Note on Perforation of Gastric Ulcers into the Heart Itself, with Report and Photograph of a Case.*
7. CRAWFURD, R. H. P. *Martial and Medicine.*

BRITISH MEDICAL JOURNAL.

DECEMBER 6, 1913.

1. *GRIFFITHS, J. *An Address on the Large Intestine and Its Work.*
2. STIRLING, W. *On Health, Fatigue, and Repose.*
3. *MORLEY, J. *Traumatic Intramuscular Ossification; Its Pathology and Treatment by Excision and Autogenous Grafting on Fascia.*
4. ANDERSON, H. G. *A Post-graduate Lecture on the Operative Treatment of Hemorrhoids.*
5. WEBER, F. P. *Rheumatic Nodules (Rheumatismus Nodosus) Associated with Rheumatic Torticollis.*
6. CROWE, H. W. *The Daily Weight Chart as a Guide to Tuberculin.*
7. PICKERELL, H. P., AND CHAMPTALOUP, S. T. *The Bacteriology of the Mouth in Maori Children.*

1. Griffiths describes in a plain and interesting way what are the functions of the large intestine, the rôle it plays in handling food, getting rid of waste matter and in metabolism in general. He reviews a subject that should be already fairly well known.

3. Morley cites three theories as explaining the growth of bone in muscles and fascia following trauma. These theories, which he discusses and explains are that this is due to: (1) tumor formation, (2) inflammatory changes, and (3) mechanical causes. He describes in great detail a case where this occurred, and discusses differential diagnosis, prognosis and treatment. He believes the process

to be similar to that of collus formation. In case of difficulty in diagnosis from sarcoma an exploratory incision is advisable. Single excision is usually followed by recurrence; conservative treatment is of little use; excision combined with grafting of deep fascia onto the denuded bone surface is the most likely to produce a cure. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

DECEMBER, 1913.

1. *FALCONER, A. W. *Dyspituitarism.*
2. *KER, C. B. *Scarlet Fever in the Aged.*
3. *RICHARDSON, G. *The Rumpel-Leede Phenomenon in Scarlet Fever.*
4. MATHEWSON, G. D. *Case of Auricular Flutter.*
5. *CYRIAX, E. F. *Cardiac Mechano-Therapeutics.*
6. ORR, J. *Note on Modern Prescription Writing.*

1. In this clinical lecture, illustrated with several plates, Falconer discusses in an interesting way on various abnormalities of pituitary secretion and their results in man.

2. This is an interesting discussion of a few cases of scarlet fever in the aged. The article is of value in that it calls attention to the fact that this condition is not so rare as is commonly supposed.

3. The Rumpel-Leede test for scarlet fever is elicited as follows: A bandage is tied tightly round the arm immediately above the elbow, with enough pressure so that the pulse is just perceptible at the wrist. It is kept in place ten to fifteen minutes, at the end of which time the arm should be markedly cyanosed. On removing the bandage the skin at the fold of the elbow distal to where the bandage was applied is examined for the reaction. This consists in the appearance of a widely varying number of minute petechial hemorrhages, fairly deeply seated which do not disappear on pressure, and are in fact made much more evident by stretching the skin. In the ordinary case no reaction is seen on the extensor surface of the arm. The usual explanation is that scarlatinal exanthema causes a certain "capillary vulnerability." Richardson found this reaction invariably present in a series of 210 cases of scarlet fever. No reaction was obtained before the rash had spread to the arms. In various normal persons and in those with other diseases, such as pneumonia, influenza, whooping-cough and chicken-pox the test was negative. In measles, rubella, and drug exanthems, the test was more often positive. In certain doubtful cases the writer believes this phenomenon to be an additional diagnostic sign.

5. Cyriax, evidently an enthusiastic believer in the beneficial effects of massage on certain circulatory diseases and others, describes in great detail, with the help of many excellent illustrations, his methods of treating various cardiac conditions. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 48. DECEMBER 2, 1913.

1. HEINEKE, H. *The Reaction of the Blood-forming Organs to Modern Deep Ray Exposures.*
2. *SINGER, G., AND HOLZKNECHT, G. *The Radiological Diagnosis of Chronic Appendicitis.*
3. VERAGRUTH, O., AND SEYDERHELM, R. *The Rapid Production of Abnormal Leucocytes by a New Method. (Second communication.)*
4. HENRICH, T. *Direct Means of Clinical Investigations.*
5. GWERDER, J. *Compression of Tuberculous Lungs. (Preliminary communication.)*
6. FÜRTH. *A Bacterium of the Faecalis-alcaligenes Group as a Probable Cause of Six Typhoid-like Infections in Eastern Asia.*
7. MÖRCHEN, F. *Diogenal, a New Sedative.*
8. *NEUMAYER, V. *The Dosage of Neosalvarsan.*
9. WACKER, L. *The Active Principle of Beck's Bismuth Paste.*
10. ZIMMERMANN, R. *Tenosin.*
11. EMMERICH AND LOEW, O. *The Treatment of Fever by Long Continued Daily Doses of Calcium Chloride.*
2. SCHWYZER, F. *The Fluorium Content of Carlsbad Water.*
13. THEDERING. *The Treatment of Herpes Tonsurans.*
14. GEIGEL, R. *A Convex Laryngeal Mirror.*
15. V. FELLENBERG, R. *A Suture Carrier to Reach the Deep Pelvis.*
16. HENGGE, A. *"Antileukon," a Vaginal Powder Blower.*
17. PIPO-BARMEN, W. *The Seventieth Birthday of Ludwig Heusner.*
18. CORDS, R. *A Central Printing Establishment for Academic Papers.*
19. NASSAUER, M. *The High School for Physicians and Patients.*

2. Singer and Holzknecht state that the diagnosis of chronic appendicitis is often difficult on account of its indefinite signs and symptoms. The x-ray alone has proven of no value as a means for discovering this condition.

Singer and Holzknecht have studied in the following way, 25 cases which had suggestive symptoms of chronic appendicitis and were confirmed by operation or autopsy. The patients were given a bismuth-meal six hours and aften, in addition, thirty hours before exposure, in order to fill the large intestine with bismuth. They were then x-rayed and palpated at the same time, with a lead line drawn over the tender areas. By this method the position of the cecum, and large intestine with adjacent coils of small intestine, was mapped out in relation to the painful area, and the motility or fixation of these organs was determined. Thus Singer and Holzknecht believed that in chronic appendicitis they were able to make a more accurate diagnosis than by physical examination alone, and were able to differentiate appendicitis from disease of the pelvic organs, ureter, or from a ptosis which might account for the symptoms encountered.

8. Neumayer reviews the literature on the dosage of neosalvarsan. There has been a tendency among various authors to decrease the amount injected. From five years' experience with salvarsan, however, Neumayer believes that the best results in the treatment of syphilis are obtained by large doses of therapeutic agents. Therefore Neumayer gives men neosalvarsan in amounts corresponding to .8-1.00 gms. of salvarsan, and women a dose corresponding to .6-1.00 gms. of salvarsan. He has seen a few cases where transitory albuminuria developed, but otherwise has noted no ill effects. He concludes with Ehrlich that the number of relapses in syphilis are in inverse proportion to the intensity of the treatment and are reduced to a minimum the more energetically the early stages of the disease are treated. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 43. OCTOBER 27, 1913.

1. SCHWABACH. *Chronic Suppurative Otitis Media.*
2. *KIRÁLYFI, G. *Experiments in the Therapeutic Use of Benzol in Carcinoma.*
3. LENNÉ. *The Treatment of Pneumonia with Ethylhydrocuprein and Pneumococcus Serum.*
4. PRZEDBORSKI, J. *An Interesting Case of Ascariasis and Tuberculous Meningitis, and the Action of the Oil of Chenopodium on the Ascaris.*
5. HEYMANN, E. *A Case of Retro-pharyngeal Tuberculous Gland.*
6. *HENDERSON, Y. *The Immediate and After-effects of Spinal and Local Anesthesia Compared with Those of Inhalation Anesthesia, as Regards Shock.*

7. ARNOLDI, W. *A Belt for Emaciated Enteroptotic Patients.*
8. BLUMENTHAL, F. *The Present Status of the Treatment of Malignant Tumors.* (*Continued from the last number.*)
9. LOEWY, E. *The Surgery of the Central Nervous System.*
10. RUNGE, E. *The Use of the Gonococcus Vaccine in the Gonorrhea in Women.*

2. The author reports two cases of recurrent cancer of the breast treated by local injections into the tumor, of benzol. He found that where the drug came into contact with the tumor cells, the latter were destroyed and the tissues in the immediate vicinity became necrotic. This was clearly a local action and the tumor cells outside the radius of activity of the benzol continued to grow just the same. His results do not argue strongly in favor of this treatment.

6. The author emphasizes especially the predisposing influence toward shock of fright, anxiety and nervous hyperirritability in the patient, and says that these should be avoided as much as possible during the induction of general anesthesia, and during the course of an operation under local or spinal anesthesia. He says that the chief seat of trouble in shock is in the medulla, and that noxious psychic stimuli coming to the medulla from the brain may at times have quite as much evil effect as afferent impulses coming to it from the injured periphery. To this end he advises the constant use of nitrous oxide in the induction of general anesthesia—that it may be as speedy and as comfortable for the patient as possible. [R. H. M.]

ANNALES DE L'INSTITUT PASTEUR.

OCTOBER 25, 1913.

1. BRIDRÉ, J., AND BOQUET, A. *Vaccination Against Rot by Sensitized Vaccine.*
2. SEJOWENANT, J. *Mediterranean Fever in Algiers in 1912.*
3. *KLING, C., AND LAVADITI, C. *Studies upon Acute Epidemic Poliomyelitis.*
4. LEMOIGNE, M. M. *Assimilation of Saccharose by the Bacteria of the B. Subtilis Group.*
5. TRUCHE, C., COTOUI, L., AND RAPHAEL, A. *Studies upon the Pneumococcus. Action of Bile upon Human ad Animal Pneumococcus.*

3. This is the continuation of the article reviewed in the September number of this journal. The authors take up here a study, first of the serum of those afflicted with the disease and others not. They find that in the serum of patients cured of this disease and in some of the people who remain immune in the midst of a severe epidemic who have been exposed, there are properties capable of destroying the poison in vitro. From a study of cases at different stages of the disease they find that the antibodies develop early in the disease. In fact they think that during the incubation period, before there is any evidence of the disease, the body is reacting to the poison and forming antibodies. The abortive cases show these same protective properties. [C. F., JR.]

JOURNAL OF MEDICAL RESEARCH.

DECEMBER, 1913.

1. *MEYER. *The Specific Paratuberculous Enteritis of Cattle in America.*
2. OLIVER. *The Relation of Hodgkin's Disease to Lymphosarcoma and Endothelioma.*
3. WADE. *Primary Hodgkin's Disease of the Spleen.*
4. VAN ALSTYNE AND BEEBE. *Diet Studies in Transplantable Tumors. 1. The Effect of Non-carbohydrate Diet upon the Growth of Transplantable Sarcoma in Rats.*
5. WEIL. *Studies in Anaphylaxis versus Desensitization; Its Theoretical and Practical Significance.*
6. LECOMTE. *Adenomata of the Islands of Langerhans.*
7. *HAYTHORN. *Some Histological Evidences of the Disease Importance of Pulmonary Anthracosis.*
8. BARTLETT AND SMIRNOW. *Hydropic Condition of Rabbits' Livers.*
9. *ORTON. *A Note on the Occurrence of B. Aerogenes Capsulatus in an Epidemic of Dysentery and in the Normal.*
10. *SMITH. *Some Bacteriological and Environmental Factors in the Pneumonias of Lower Animals, with Especial Reference to the Guinea-pig.*
11. *MEYER AND BOERNER. *Studies in the Etiology of Epizootis Abortion in Mares.*

1. Meyer shows that American paratuberculous enteritis is similar to the European form, one of the earliest cases of which was reported by Frothingham. The organism is a member of the "acid-fast" group, and is more closely allied to the Avian Tubercle Bacillus than any other. Inoculation experiments were successful in the three cases attempted. Radioscopic stool examination was positive in only 40% of the advanced cases. The author advises an investigation of "paratuberculin" and of serological reactions.

7. Haythorn has conducted a careful study of the pathological histology, in man and lower animals, of anthracosis. The investigation was carried out under ideal physical conditions, *i.e.* in Pittsburgh. He finds that the quantity of carbon taken up by the lining cells of the upper air passages and of the bronchi and alveoli is insignificant. Phagocytosis of pigment takes place by the endothelial cell, which is in all likelihood the large mononuclear basophile of the blood. These cells pass into the pulmonary lymphatics, where they often lodge and become surrounded by connective tissue. This lymphatic obstruction has a great pathological significance since it tends to limit the spread of tubercular processes and in that way promotes healing. But a detrimental effect is seen in the case of acute inflammatory conditions, *i.e.* pneumonias, since this lymphatic obstruction prevents rapid resolution and absorption. The presence of pigment granules in the "epitheloid" cells (endothelial) of the tubercle does not interfere with the cells' action in forming the lesion.

9. Orton finds the B. Aerogenes Capsulatus with greater frequence in the stools of residents of the hospital who have not been attacked by diarrhea or dysentery, than he does among the sick during or following the acute stages of this disease. The percentage of positive findings among students, living without the hospital, is somewhat smaller, but still large enough to throw considerable doubt upon the significance of this organism as a causal factor of dysentery.

10. Pneumonia in guinea-pigs is produced by the B. Bronchisepticus and by the Pneumococcus, the latter often secondary to the former. The motile bacillus lives from winter to winter in old pneumonic foci or in the air tubes. It is not found in the latter site in all guinea-pigs. The latter is a fact of importance in connection with the breeding of that animal.

11. In an outbreak of epizootic abortion in mares in Pennsylvania, Meyer and Boerner have established as an etiological factor a member of the paratyphoid enteritidis group, which they have called the B. abortus equi. Morphologically and biologically, it is more closely related to the group B. Paratyphosis B. than to any other. It is agglutinated by the specific serum to high degree and also by that of B. Paratyphosus B. and B. Enteritidis (Gaertner), though only in low dilution. The same organism was recovered from the fetal envelope in one case and twice from vaginal secretions in five infected animals. Artificial infection was produced by subcutaneous, intravenous, intravaginal and alimentary routes in a pregnant cow, goat, sow, and small animals such as

guinea-pigs and rabbits. The surest methods of diagnosis lie in agglutination and complement fixation reactions. [L. H. S.]

Obituary.

GEORGE HENRY TORNEY, M.D.

DR. GEORGE HENRY TORNEY, surgeon-general of the United States Army, who died of bronchopneumonia on Dec. 27, 1913, at Washington, D. C., was born in Baltimore, on June 1, 1850. After obtaining his preparatory education in Carroll College, New Windsor, Md., he studied medicine at the University of Virginia, from which he received the degree of M.D. in 1870. On Nov. 1, 1871, he was appointed assistant surgeon in the United States Navy, becoming a passed assistant surgeon on Nov. 1, 1874. On June 30, 1875, he resigned from the navy, and was immediately appointed assistant surgeon in the United States Army. He was promoted to the rank of captain on July 1, 1880; became surgeon major on June 6, 1894; and in the latter position saw active service in Cuba during the Spanish War, and subsequently in the Philippines. He was made lieutenant colonel and deputy surgeon-general on Aug. 8, 1903; and on April 23, 1908, received the rank of colonel of the Army Medical Corps. On Jan. 14, 1909, he was appointed surgeon-general of the United States Army, a post which he filled ably until his death. He was a member of the American Medical Association, the Association of Military Surgeons of the United States, and the American Red Cross.

Miscellany.

REPORT OF COMMITTEE ON THE STANDARDIZATION OF HOSPITALS.*

WE have believed it to be the wish of this congress that we should examine the ways and means by which this body might best do its share in the general movement which the public is beginning to demand toward increasing the efficiency of hospitals.

We shall presently offer to you three definite suggestions for action by which you may materially aid this important movement, but first we should like to call your attention to the method by which we have approached this subject.

By what standards can we compare hospitals? It is obvious that there are many. There may be a standard of architecture, of cleanliness, of kindness to the patients, of nursing, of medical education, etc. To some persons the per capita cost, the number of patients annually treated, the success in private practice of their medical and surgical staffs, the quality of the scientific papers produced, or the up-to-dateness of the laboratories may seem the important elements. Some hospitals seem satisfied with the famous contributions to medical science which some member of their staff made a hundred years ago!

We believe that you will agree with us that even cleanliness, marble operating rooms, famous physicians and surgeons, up-to-date laboratories and time-honored reputation do not necessarily mean that the individual patient will today be freed from the symptoms for which he seeks relief.

Even the standard of kindness cannot replace the actual facts of the relief or prevention of symptoms or of the prolongation of life. For does a scientific paper written about the autopsy give the patient the satisfaction that a successful operation might have done!

The more time we have spent on this subject, the more obvious it has seemed to us that the only firm ground on which we can compare hospitals is by the actual results to the individual patient. Even a statistical comparison of the results of the treatment of the disease is less satisfactory. A patient operated on at the same sitting for fibroids of the uterus, gallstones and epithelioma of the nose cannot properly be classified under one of these headings for comparison with other individuals, nor does this combination of diseases form a group frequent enough to tabulate.

A comparison of the morbidity reports of many of the best institutions in this country has convinced us of the futility of the great labor and expense which has been expended on them. Owing to diversity of methods of classification they are not comparable except in the most gross way. Some are arranged by disease alphabetically, some by regions, and others by elaborate systems modelled after the International List of the Causes of Deaths.

Our impression of the futility of such praiseworthy efforts without coöperation and coördination, we have found to be shared by the members of the staffs of even those institutions making the greatest efforts in this direction. We believe that those who compile these statistics would welcome a more simple and direct form. We also believe that it is almost useless for one hospital to undertake statistics of this kind unless other similar institutions adopt like methods.

Since these tables are compiled only from the condition of the patient at the time of discharge from the hospital, they are at best a mere rough statement of immediate mortality and do not represent the real result to the patient of the treatment received. Nevertheless, we are convinced that no standardization of hospitals can be fair which is not based on what

* Presented at the meeting of the Clinical Congress of Surgeons, Chicago, Nov. 11, 1913.

the hospital is actually doing for its individual patient, and that some form of hospital report must be devised which will show that each hospital is, at least, making an effort to ascertain whether the results of its treatment are satisfactory or not. From this point of view a successful operation done in a barn is equivalent to a similar one done in an expensive modern operating room. Likewise, one which was unsuccessful because a famous surgeon or teacher was careless or pressed for time is worse than one which failed because the operator was not a member of the American College of Surgeons!

Further personal investigation of a number of the best institutions in the country developed the astounding fact that no effort is made to trace the patient beyond the gate of the hospital except such investigation as is individually made by members of the staff for their own interest. A patient might be operated upon, leave the hospital with the wound healed, and yet no effort be made to record the result of the operation. In other words, we have the paradox that neither the hospital trustees, the physician, or the surgeon or administrator consider it their business to make sure that the result to the patient is good.

A factory which sells its product takes pains to assure itself that the product is a good one, but a hospital which gives away its product seems to regard the quality of that product as not worthy of investigation.

In a way, trustees of hospitals who do not investigate the results to their patients do not audit their accounts.

We believe it is the duty of every hospital to establish a follow-up system, so that as far as possible the result of every case will be available at all times for investigation by members of the staff, the trustees or administration, or by other authorized investigators or statisticians. We believe that the publication of such material in abstract by case numbers is practical and does not entail a disproportionate expense.

The committee have distributed a leaflet suggesting a form of report based on the idea of a brief abstract of the individual case. Such a report would, at least, be uniform in character and could be expanded indefinitely, according to the means of the hospital. It would, at least, show the essential fact of whether the hospital was making an effort to trace its cases. It would also put its material at the service of medical science in a form much more practical to a statistician than even the best prepared morbidity reports at present published.

If hospitals kept such abstracts in available form, even if not published, we believe that the practical standards of their work would be greatly improved and that a definite basis of the comparison of the efficiency of such institutions would be fixed.

A method such as suggested is at present in use at the Massachusetts General Hospital of Boston, and other similar plans are being tried by a few other institutions.

It would be obviously inappropriate for this Clinical Congress of Surgeons to attempt any specific suggestion as to forms of hospital reports. Bodies such as the American Medical Association and American Hospital Association are more fitted to do this since they represent general medical science and not a special branch.

Your committee has been in touch with the various committees of these associations and has found them already actively working. The committee of the American Medical Association on medical education, whose chairman is Dr. Bevan, has approached the Carnegie Foundation with a petition that it should investigate the efficiency of American hospitals after a similar manner to that in which they recently investigated medical education. Since such an investigation would entail great expense and require much time and effort it is unlikely that an unpaid board from the medical profession would be able to conduct it thoroughly. It is also probable that such a question of efficiency would best be studied by modern efficiency engineers—not by medical men with preconceived ideas. For these reasons your committee would favor any action you may see fit to take in adding the petition of this body to that of the American Medical Association and American Hospital Association to broaden the scope of the investigation beyond that of medical education.

As it is highly probable that the Carnegie Foundation will undertake this matter, at least so far as it concerns medical education, we may now consider what this congress can do to aid them.

Representing, as you do, almost all the hospitals of the country, there is much which you may accomplish by a united or rather a uniform effort. It is safe to assume that those employed by the Carnegie Foundation will thoroughly investigate such matters as business efficiency, laboratory equipment and the relations of medical education, etc.

It is in matters connected directly with the results of surgical treatment in which they will need your help. When you return to your hospitals you can do much to aid the coming Carnegie representative by systematizing the methods which you already use to trace the results of your operations. If you have no such system, you would do well to get your hospital to establish one now, for the demand for it is sure to come. In our leaflet we have offered you some suggestions.

When a follow-up system is once established it will do much toward weeding out the superannuated, the lazy and ill-trained surgeons of your community, even though they hold high places. The delayed misfortunes of the brilliant operators who do not do the right thing will appear from the invisible, and the true surgeon

who uses his knife to relieve and prevent suffering will come to his own.

Remember that when the question of efficient treatment comes up, that it will be the results of the surgeon which are the easiest to put in the limelight.

Your committee, therefore, have to offer the following three suggestions:

1. That this congress give the stamp of its approval to an investigation of hospitals by the Carnegie Foundation and empower its representatives to urge the Foundation not to limit their inquiries purely to the bearings on medical education, but to classify hospitals according to their actual efficiency.

2. That each of us do what we can to induce the trustees of our own hospitals to organize a follow-up system for all patients treated.

3. That each of us do what we can to induce the fellow members of our staffs to appoint efficiency committees who may look into present conditions in our hospitals, in order that we may, as far as possible, do our own housecleaning.

Such efficiency committees should be composed of a member of the trustees, a member of the staff and a superintendent.

If tracing the results to the patients is equivalent to auditing the accounts, the trustees should take a hand in it.

In closing this report your committee wishes to again state their conviction that the essential factor which will most contribute to raising the standard of American hospitals is the establishment in each hospital of a follow-up system of tracing the outcome of treatment given to each individual patient.

We have spoken of a united or uniform effort on the part of individual members of this congress, and we urge you in the strongest way to obtain at your own hospitals the establishment of efficiency committees on which the trustees or managers, as well as the staffs, are represented.

Let us make this effort uniform. Let us not have the efficiency committee composed in some hospitals entirely of members of the staff, but let us aim to have all three of the important branches of hospital management represented so that each may bear in part the burden of the responsibility to the community of the efficient treatment to the individual.

Let it not be said, as it may justly be at present, that neither the superintendent nor the manager nor the staff feel it their duty to ascertain whether the product of their hospital is sound or damaged.

E. A. CODMAN, M.D., Boston, *Chairman*,
W. W. CHIPMAN, M.D., Montreal,
J. G. CLARK, M.D., Philadelphia,
A. B. KANAVAL, M.D., Chicago,
M. J. MAYO, M.D., Rochester, Minn.

MASSACHUSETTS MEDICAL SOCIETY.

SPECIAL MEETING OF COUNCIL.

A special meeting of the council of the Massachusetts Medical Society was held December 30, 1913, at twelve o'clock, noon, in Sprague Hall, Boston Medical Library, with the president, Dr. W. P. Bowers, in the chair. There were sixty-two members of the council present.

The records of the last meeting were read and accepted.

Dr. Hugh Cabot spoke on the midwife question. He thought the society through its council should give definite instructions to its committee hearings at the State House, this committee has been made to appear without authority and the policies which it favors are regarded as personal expressions of opinion rather than those advocated by the Massachusetts Medical Society. Dr. Cabot presented the following letter to the president, which was signed by the Obstetrical Society of Boston and by forty-four physicians of Boston, Haverhill and Springfield:

Last year in the legislature, by House Bill No. 678, an attempt was made to legalize the midwife and admit her on equal terms with the physician to the practice of Obstetrics. Certain members of the Massachusetts Medical Society favored this bill. In all probability there will be another attempt this year to legislate in the midwives' favor. By a decision of the Supreme Court handed down by Justice Rugg, Commonwealth v. Porn, the midwife was excluded from practicing obstetrics. Yet in Chapter 29 of the Revised Laws of the Commonwealth, the word midwife repeatedly occurs (Section III, "a midwife shall make and keep a record, etc.", "the fee of the physician or midwife shall be twenty-five cents;" later, "the physician or midwife who neglects"), thus seeming to give her a legal status. There are persistent reports about Boston that members of the Massachusetts Medical Society are signing birth returns of infants delivered by midwives, the physician not being in attendance. We, the undersigned, members of the Massachusetts Medical Society, feel that the practice of obstetrics is a vital and essential branch of the practice of medicine and that no training other than that leading to the degree of M. D. is to be considered adequate or sufficient for engaging in this practice. We recognize that this consideration may, however, demand an ideal situation. Therefore, until public sentiment can be roused sufficiently to raise the standard of obstetrics so that the midwife is admitted to be an unnecessary evil, we advise that no legislation should be sanctioned by the Massachusetts Medical Society other than bringing the statute books up to date by omitting the word midwife wherever it occurs in those sections pertaining to the reporting of births.

As a step in advancing the status of the practice of obstetrics, we ask you to bring before the council of the society the proposal that the practice, said to be carried on by certain doctors, of returning birth certificates on cases over which they have had no supervision, and failing to state that they were not in attendance, is contrary to the ethics of this society; that any member so doing is guilty of a misstatement of fact and should be debarred from the privileges of this society.

(Letter addressed to the president, dated Oct. 6, 1913)

In order to bring the matter into definite form, Dr. Cabot presented the following preambles and resolutions:

Whereas, by Chapter 76, Sections 8 and 9, of the Revised Laws of the Commonwealth of Massachusetts, the midwife was excluded from the practice of her profession within the confines of this state, and by a decision of the Supreme Court handed down by Justice Rugg in the case of the Commonwealth v. Porn the law was held to directly cover the activities of the midwife and thus made effective:

And whereas, Chapter 29 of the Revised Laws of the Commonwealth of Massachusetts repeatedly uses the word *midwife* (Section 3, "Physician and midwife shall make and keep a record," etc., and later, "the fee of the physician or midwife shall be twenty-five cents," etc., and later, "the physician or midwife who neglects," etc.), thus seeming to give her legal status;

And whereas, by House Bill 678 presented to the Great and General Court of the Commonwealth of Massachusetts, January 9, 1913, a definite, although unsuccessful, attempt was made to legalize the midwife and admit her on equal terms with the physician to the practice of obstetrics, this bill being favored by certain members of the Massachusetts Medical Society;

And whereas, persistent reports are being received that members of the Massachusetts Medical Society are signing birth returns for infants delivered by midwives without a physician in attendance;

Be it resolved, that we, the council of the Massachusetts Medical Society, put ourselves on record as of the firm opinion that the practice of obstetrics is a vital and esssential branch of the practice of medicine, and requires the care and supervision of a graduate in medicine, and that there is no place for the untrained practitioner in this field of medicine within the Commonwealth of Massachusetts: that no training other than that leading to the degree of M. D. is to be considerd adequate or sufficient for engaging in this practice; that untrained persons practicing obstetrics are in open defiance of the law and should be prosecuted when apprehended; that as soon as public sentiment within and without this society can be sufficiently aroused, a bill shall be presented to the Great and General Court of the Commonwealth of Massachusetts which shall provide for the omission of the word *midwife* from the statute books, thus bringing the law up to date; that members of this society are hereby enjoined from handing in birth returns on cases over which they have had no supervision when delivered by a midwife; and that it is the opinion of this body that a physician signing a birth return assumes the responsibility for that case.

These were discussed by Drs. H. P. Walcott, F. C. Shattuck, H. D. Arnold, F. E. Bateman, C. H. Cook, the president and Dr. C. F. Withington. Dr. Withington pointed out four alternatives that are open at this time: 1. To leave the present law; 2. To leave the present law with the elimination of expressions which tolerate or legalize midwives; 3. To legislate positively prohibiting midwives to practice; and 4. A licensure of midwives after examination.

The question was further discussed by Dr. Buckingham and others. The preambles and resolutions being put to vote, were adopted unanimously.

It was moved and

Voted, That the committee on ethics and discipline be directed to look into the matter of the signing of birth certificates by fellows who have not been actually in attendance, and to take such action as it deems advisable.

Dr. M. W. Richardson, for the committee on public health, presented the question of ophthalmia neonatorum, and made the following motion:

Moved, That the council approves amending Section 49 of Chapter 75, of the Revised Laws relative to the better control of ophthalmia neonatorum as follows:

"Section 49 of Chapter 75 of the Revised Laws is hereby amended by adding after the word "necessary" in the eighteenth line, the following words: "including as far as may be possible consultation with an oculist and the employment of a trained nurse."

This was discussed (by invitation) by Dr. F. E. Cheney. He said that in recent years he had treated many cases of ophthalmia neonatorum at the Massachusetts Charitable Eye and Ear Infirmary; that last year in 20% of the cases that were admitted blind, the blindness was due to ophthalmia neonatorum. He read extracts from data as to seven members of the Massachusetts Medical Society who had been derelict either in reporting or in treating cases of ophthalmia neonatorum, most of these being in the neighborhood of Boston, and none in the remote country districts. The inexperienced practitioner rarely notices the involvement of the cornea in these cases, and thinks that because the discharge has become less, the cornea is not affected. Dr. Cheney thought that the Massachusetts Medical Society should go on record as opposed to the treatment of cases of ophthalmia neonatorum by the general practitioner, and he favored Dr. Richardson's motion. After some further discussion, the motion was put by the president and passed unanimously.

Dr. M. W. Richardson, for the committee on public health, read the five sections of an act to enable the State Board of Health to better protect the public health through adequate supervision of the conditions under which milk is produced, transported, kept for sale and sold, and he moved that it be approved by the council; and on being put to vote, it was approved unanimously.

The president nominated the following as a committee to audit the treasurer's accounts, and they were elected:

D. N. Blakeley, Brookline
J. L. Huntington, Boston.

Dr. Homans, for the committee of arrangements, asked for advice from the council as to the annual dinner. He pointed out that the expense had increased of late, and queried whether it was worth while to spend so much on the dinner when the other activities of the society needed part of the funds. His committee planned to charge a nominal amount, say one dollar apiece, to cut down the expense of the dinner, but not to change the character of the dinner; and he made a motion that the committee of arrangements be instructed if it sees fit to impose a charge of one dollar on all fellows who attend the annual dinner.

Dr. Broughton pointed out that the last dinner was not more expensive per diner than

usual, but that more fellows attended; and that each one over one thousand (the number contracted for) costs fifty cents extra. Dr. Hough said that he didn't see why the two-thirds of the society who did not attend should pay for the third who ate the dinner, and that he thought there were very many fellows who did not require an elaborate dinner and would rather have the funds of the society expended for more worthy ends.

Motions were made to substitute two dollars and three dollars in place of the one dollar in the original motion. On being put to a vote, these were lost.

On motion by Dr. Arnold, the words "if it sees fit" were struck out of the motion, and the amendment being accepted by Dr. Homans, the motion was passed as amended.

Dr. Goss, for the committee on membership and finance, reported as follows:

The committee on membership and finance reports that at a meeting of the council held October 1, 1913, the following votes were passed:

I. That its secretary be instructed to send to each member of the society a copy of that part of the report of the Judicial Council of the American Medical Association which refers to secret fee splitting and "contract practice."

II. That the president be empowered to direct the legal counsel of the society to bring before the Superior Court, and if need be before the Supreme Court, a test case under Part III. Sections 11 and 16 of the Workman's Compensation Act (Chap. 751, Acts of 1911, as amended by Chaps. 172 and 571, Acts of 1912) in order to clear up in part the vexed matter of the ultimate payment of physicians' fees in disputed cases.

By direction of the president, these votes were referred to the committee on membership and finance. A meeting of the committee was held October 13, 1913, and after full discussion, it was voted to recommend to the council that $64.00 be appropriated from the treasury of the Massachusetts Medical Society for the printing and distribution to its members of that part of the report of the Judicial Council of the American Medical Association relating to secret fee splitting and contract practice.

Also, that $100.00 be appropriated to enable the legal counsel of the society to bring before the courts a test case to clear up in the Workman's Compensation Act the matter of the ultimate payment of physicians' fees in disputed cases.

Voted, To accept the report and adopt its recommendations.

The report of a committee appointed to consider the petition of one former fellow for reinstatement was accepted and six committees were appointed to consider the petitions for reinstatement of six former fellows.

The treasurer spoke of the case of the estate devised under the will of Isaac P. Smith, a fellow of the Massachusetts Medical Society, who died in 1862, late of Gloucester, and said that the Massachusetts Medical Society is a residuary legatee but that there are so many young heirs-at-law the possibility of the society's receiving anything from the will is rather remote. He queried whether the president had authority to sign documents relating to the estate submitted by the trustee, and whether the society should bear any of the legal expenses connected therewith.

On motion by Dr. H. P. Walcott, it was

Voted, That the president be authorized to do as he sees fit in the case of the Isaac P. Smith will, without expense to the society.

Voted, That the two bills submitted by the committee on public health be introduced to the legislature by some member of the council, and that the committee on state and national legislation be instructed to support the measures.

The president announced the death on December 20th, of Dr. A. E. Mossman, of Westminster, councillor and supervisor.

Adjourned at 1.45 P. M.

WALTER L. BURRAGE,
Secretary.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE 3 WEEKS ENDING DEC. 27, 1913.

December 10, Surgeon R. R. Richardson, detached: *Virginia* to *New Jersey*.

Surgeon G. L. Angeny, detached: *New Jersey* to *Virginia*.

P. A. Surgeon G. B. Crow, detached: Naval Medical School, Washington, D. C., to Naval Hospital, Brooklyn, N. Y.

P. A. Surgeon C. E. Strite, detached: *Virginia* to *Michigan*.

Assistant Surgeon J. J. O'Malley, detached: *Albany* to home, wait orders.

December 12, P. A. Surgeon P. R. Stalnaker, detached: *Prairie* to New York Hospital, for treatment.

P. A. Surgeon E. L. Woods, ordered to Naval Proving Grounds, Indian Head, Maryland, temporary duty.

December 13, P. A. Surgeon J. B. Pollard, ordered to *Prairie*.

P. A. Surgeon H. F. Strine, detached: Norfolk Hospital to *Solace*.

Surgeon A. M. Fauntleroy, detached: *Solace* to waiting orders.

P. A. Surgeon L. W. McGuire, to Receiving Ship at Norfolk, Va.

December 17, Surgeon H. A. Dunn, detached: *Solace* to *Kearsarge*.

Surgeon W. M. Garton, detached: *Kearsarge* to *Solace*.

December 23, Surgeon D. N. Carpenter, detached: *Tennessee* to First Regiment, Advance Base Brigade.

P. A. Surgeon L. W. McGuire, detached: Receiving Ship, Norfolk, Va., to First Regiment, Advance Base Brigade.

P. A. Surgeon F. X. Koltes, detached: *North Dakota*, to First Regiment, Advance Base Brigade.

P. A. Surgeon C. F. Charlton, detached: *Panther*, to First Regiment, Advance Base Brigade.

Assistant Surgeon R. F. Sheehan, detached: Atlantic Reserve Fleet, to First Regiment, Advance Base Brigade.

SOCIETY NOTICE.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, January 13, 1914, in the out-patient amphitheater of the Massachusetts General Hospital, at 8.15 o'clock.

The meeting will be conducted by the staff of the Massachusetts General Hospital, Dr. Roger I. Lee, secretary.

Papers will be presented as follows:

Dr. C. A. Porter, "Graves' Disease." (15 minutes.)

Dr. J. H. Pratt, "Uric Acid Content of the Blood in Gout by the Method of Folin and Dennis." (15 minutes.)

Dr. A. E. Steele, "Cornyebacterium Hodgkini in Lymphatic Leukemia and Hodgkin's Disease." (5 minutes.)

Dr. W. A. Hinton, "Lange's Colloidal Gold Test in the Cerebro-spinal Fluid." (15 minutes.)

Dr. F. B. Talbot, "Respiratory Metabolism of Infants." (15 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

MASSACHUSETTS GENERAL HOSPITAL.

A surgical meeting open to the Medical Profession will be held at 8.15 p.m., Friday, January 9, 1914, in the lower amphitheatre of the Out-patient Department. Entrance on either Blossom or Fruit Streets.

DR. FARRAR COBB will present: "Cancer of the Uterus with Comparative Analysis of the Hospital Cases and End Results, with Special Consideration of the Radical (Wertheim) Operation for Cancer of the Cervix."

DR. HAROLD GIDDINGS will present: "A Preliminary Report on the Study of Blood Pressure in Hysterectomies and other Radical Operations."

APPOINTMENTS.

BOSTON BOARD OF HEALTH.—*Dr. James J. Scannell*, of this city has been appointed director of the bacteriologic laboratory of the Boston Board of Health.

BOSTON DISPENSARY.—*Dr. Edward O. Otis* has been appointed consulting physician and *Dr. Robert W. Lovett* consulting orthopedic surgeon. Dr. Otis is just retiring after a service of 27 years in the tuberculosis department, which hereafter will be united with the department of internal medicine. *Dr. A. Warren Stearns* has been appointed physician in charge of the department of mental diseases. *Dr. P. S. McAdams* has been promoted to be surgeon in the ophthalmic department, *Dr. Robert L. De Normandie* in the gynecologic department, and *Dr. Hilbert F. Day* to be assistant surgeon in the general surgical department.

RESIGNATION.

It is announced that DR. WILLIAM ALLEN BROOKS, of Boston, has resigned his position as surgeon-in-chief of St. Elizabeth's Hospital in this city.

RECENT DEATHS.

DR. EMMA E. MUSSEN, who died at Philadelphia on Dec. 28, was born in 1863. She was a member of the American Medical Association, and professor of otology at the Woman's Medical College, Philadelphia.

DR. FRANK H. O'CONNOR, who died of cardiac disease on Dec. 26 at Brattleboro, Vt., received the degree of M.D. in 1898 from Long Island Medical College. He was on the surgical staff of the Brattleboro Hospital.

DR. HENRY STIER POLL, of Virginia Hot Springs, who died of cardiac disease recently in Lewisburg, W. Va., was born at Baltimore, Md., in 1845. He had practised his profession at Hot Springs since 1867. He is survived by his widow and nine children, two of his sons being also physicians.

DR. CHARLES PHELPS, of New York, died on December 30. Dr. Phelps was born on December 12, 1834, in Milford, Mass., and was a lineal descendent of William Phelps, who came to Massachusetts in 1630. He was graduated from Brown University in 1855 and from the College of Physicians and Surgeons, New York, in 1858. He was a contract surgeon during the Civil War, and had practised in New York from its close until 1909, when he retired. For forty years he was surgeon to Bellevue and St. Vincent's Hospitals, and at different times he served as president of the New York State Medical Society, the medical board of Bellevue Hospital, and the board of police surgeons. He was the author of a work on injuries of the brain, as well as of numerous surgical papers. He is survived by his widow and by one son.

DR. ALFRED E. M. PURDY, a widely known physician of New York, died on December 25. He was the son of Dr. Alfred S. Purdy, and was graduated from the College of Physicians and Surgeons in 1861. Dr. Purdy was for many years editor of the Medical Register of New York, New Jersey and Connecticut, now superseded by the Medical Directory, published by the State Medical Society, and recording secretary of the Medical Society of the County of New York. He was also the organizer of the Methodist Episcopal (Seney) Hospital in Brooklyn, to which he was consulting physician at the time of his death.

DR. HOWARD BECK REED, of Seabright, N. J., the son of Dr. James J. Reed of that place, died at the Neurological Institute, New York, on December 27. He was graduated from the medical department of Columbia University in 1910.

DR. SILAS WEIR MITCHELL, of Philadelphia, died of broncho-pneumonia in that city on Jan. 4, at the age of 85 years.

DR. J. FRANCIS DE SILVA, who died last week at Atlantic City, N. J., was born in 1875, and graduated in 1900 from the University of Pennsylvania.

BOOKS AND PAMPHLETS RECEIVED.

Hygienic Laboratory, Bulletin No. 87. Digest of Comments on the Pharmacopoeia of the United States of America and on the National Formulary, by Murray Galt Motter and Martin I. Wilbert. Washington.

Dock-Outlines for Case-Taking and Routine Ward and Laboratory Work, by George Dock, A.M., M.D., and George Mahr, Ann Arbor, Mich.

Psychology and the Medical School, by E. Stanley Abbot, M.D. Reprint.

Hygienic Laboratory, Bulletin No. 90. Epidemiological Studies of Acute Anterior Poliomyelitis, by Wade H. Frost.

Diagnosis and Indications for Treatment of Suppurative Diseases of the Nasal Accessory Sinuses, by Robert Levy, M.D. Reprint.

The Differential Diagnosis between Vincent's Angina and Primary Syphilitic Lesion of the Tonsil, by Rovert Levy, M.D. Reprint.

The Dignity of Otolaryngology, by Robert Levy, M.D. Reprint.

Laryngeal Tuberculosis, by Robert Levy, M.D. Reprint.

Tumors of the Larynx, by Robert Levy, M.D. Reprint.

Urinary Diseases by Stephen H. Blodgett, M.D. Whitcomb and Barrows. 1914.

Some Interesting Data on Recently Reported Research Work on Dysentery, by S. R. Klein, M.D. Reprint.

Some New Methods Applied in Research Laboratories, by S. R. Klein, M.D. Reprint.

Whooping Cough, by S. R. Klein, M.D. Reprint.

Die medizinische Hoole in den Vereinigten Staaten Nord-Amerikas, by Dr. S. R. Kelin, M.D. Reprint.

Diseases of the Rectum and Pelvic Colon, by Martin L. Bodkin, M.D. E. B. Treat and Company. 1913.

Ulcer of the Stomach, by Charles Bolton, M.D. Longmans, Green and Company, New York, N. Y. 1914.

Surgical Diseases of Children, by Samuel W. Kelley, M.D. E. B. Treat and Company, New York. 1914.

Original Articles.

A STUDY OF CANCER.

BY SEELYE W. LITTLE, M.D., ROCHESTER, N. Y.

LET it be plainly stated at the outset that the writer does not claim to present a "cure for cancer." He does maintain that the theory here offered is at variance with no known facts, that it explains many hitherto puzzling facts, and that the practical clinical results obtained in every case of scientifically proven cancer and in every case of clinically certain cancer thus far put to the test not only confirm the general truth of the theory, but convincingly indicate that ultimately "cure" is possible. This goal can be reached, however, only by careful scientific treatment of many cases with recorded findings. Warning must be given that inoperable cases alone should be considered until we have more clinical data. Otherwise we are playing with fire.

The writer has much misgiving as to the wisdom of publishing so unfinished a report. He first submitted the report to about thirty of the best medical men in the vicinity and it is through their advice that he now publicly asks that his ideas be put to a general trial that we may the sooner know their true worth.

Acknowledgment should be made to numerous investigators all over the world, for without their long and careful research this report would be not only worthless but impossible. The facts stated can be easily verified by anyone familiar with the literature. It is unnecessary to give the list of authorities as such a list would cover many pages. To any physician interested, however, the author will gladly furnish the source of his information on any point.

Cancer appears primarily only in highly specialized cells. It is presumed that, like other highly specialized things, these cells are comparatively easily gotten out of order; that, doing special work, they need outside help to enable them to do the things an unspecialized cell does for itself, *i.e.* have their food properly prepared, their waste matter properly cared for, etc.,—in short, their nutrition. For this purpose certain cells from the same blastodermic layer are set aside to specialize in this nutrition business. This statement is made here without comment. The evidence in favor of its truth will appear later. These are the so-called ductless glands. As the special work in each case is increased there is a corresponding increase in work of the corresponding cells. For example, during growth the thymus is large and active. The reverse is also true normally; when the need for the special work slackens there is a corresponding slackening of work of the corresponding cells. The thymus (again as a single example) atrophies normally when its work is done, about the time of adolescence. So as age advances both the activity of the specialized cells and the activity of the nutrition governing specialized cells (the ductless glands) normally diminish *pari passu* to a normal physiological death.

Now suppose the balance is upset in any way. The specialized tissues may be overworked to such an extent that their specialized helpers cannot keep up with them; the helpers (the ductless glands) may be congenitally too large and active or too small and inactive; they may by accident or disease likewise over or under functionate; either the ductless glands or the specialized tissues they govern metabolically may from overwork, accident or disease begin their physiological death before their complementaries. We then, in every case of such unbalance, have a pathological process arising,—a disease in short. With some such processes we are fairly familiar: Addison's disease, Graves' disease, myxedema, for example. The conclusion is inevitable that there are other pathological conditions, the basis of which is deranged metabolism and which are caused by similar lack of balance in these highly specialized organs. We have already acquired from many patient workers an immense array of known facts concerning hyper and hypo function of the ductless glands and concerning absolute failure of such glands. Many of the proven facts seem absolutely contradictory, but that must be because we do not yet know the whole truth. One stumbling block is the assumed interrelation of these organs, one hypertrophying when another is quiescent, one apparently preventing the action of another or aiding such action. It is certain that removing one of these glands from an organism does not produce the exact opposite to an excess of the secretion of the same organ, the others being normal in each case. But there is another explanation than the assumption that one deters or aids another, as the case may be. An analogy will best show what is meant. Suppose a man with very poor teeth. Such a man is very apt to have indigestion, though the digestive organs are perfectly normal. He is then apt to be badly nourished, not part of him, but all of him, brain, bone, muscle, everything. But it would be absurd to attribute the irritability of the undernourished nerves, for instance, to an essential correlation between teeth and nerves in the sense that the thyroid and the suprarenals are supposed to be correlated. In the case of teeth and nerves we recognize easily the sequence to be purely mechanical because we can follow every step of the process. Is it not at least as good a hypothesis as any that the thyroid secretion is perfectly independent essentially of the suprarenal secretion and that the apparent intimate relation between them is really an indirect relation, precisely as teeth and nerves are indirectly related? That is, supposing the thyroid secretion fails.

Certain tissues of the body fail to get what they need. In turn they cannot deliver their quota to the organism and the whole organism necessarily suffers more or less, including other ductless glands. At all events, it is certain that failure or excess of secretion of one of these glands soon or late affects the others more or less with resulting symptoms. So no two cases of Addison's disease or of myxedema or of acromegaly or of Graves' disease will be exactly alike and in part may be widely different.

Another thing to consider is the probability of two or more of these organs being primarily at fault in some cases. When we think of the variations possible, the complexity of symptoms in certain cases is no less puzzling, but is at least more capable of explanation. Take, for example, only two glands and arrange the possible combinations which would produce a lack of balance in the whole organism. Such combinations would be in number, as follows, A and B representing the glands:—

1. A hyper
   B normal
2. A hyper
   B hyper
3. A hyper
   B hypo
4. A hypo
   B normal
5. A hypo
   B hyper
6. A hypo
   B hypo
7. A normal
   B hyper
8. A normal
   B hypo

Every one of these combinations would necessarily produce different symptoms. Nor is this all by any means. The degrees of hypo or hyper secretion in each combination may vary without limit. So our puzzling symptoms may remain puzzling but at least solution is seen to be a possibility.

The theory that these internal secretions have direct normal physiological relations with each other in the sense of aids or antagonists does not appeal to the writer. On the contrary, the theory that each secretion is independent of all the others, except in the sense that each is essential to the whole organism and therefore to the working of the others, does seem reasonable. The external secretions work that way. The gastric juice as such is self-sufficient. It neither has nor needs the aid or the inhibition of any other secretion to do its designed work. But if the pancreas is not working correctly, then certainly in time neither will the stomach, not because pancreatic juice is essential as such for the proper working of gastric juice, but because the stomach as well as any other muscle in the body must have its supply of properly prepared carbohydrate food which a normal pancreas can furnish. If the stomach cannot get this particular food it in turn cannot produce a proper gastric juice. It is an indirect relation, not a direct one. Why then assume otherwise in the case of the internal secretions?

Another consideration leads to the same conclusion. The thyroid and the suprarenals are considered in certain directions to be antagonists because they seem to produce opposite effects. But they are derivatives of different germ layers, the suprarenals from the ectoderm and the mesoderm and the thyroid from the endoderm. Also all the successful efforts at therapeutic use of the internal secretions have been either supplying the particular failing secretion or removing the organ doing the hypersecretion; never by administering a so-called antagonist in the case of oversecretion or an "aiding" secretion to help out the failure of an undersecreting organ. For myxedema we give thyroid and for Graves' disease we remove some of the hypersecreting thyroid. To be sure, we do not always succeed. In Addison's disease adrenalin by no means always cures, but for very good reasons unnecessary to discuss here. Suffice it to say that there are practical and mechanical difficulties in a theoretically perfect administration of adrenalin in Addison's disease.

On all accounts it seems more reasonable and certainly more hopeful to consider each internal secretion as essentially self-sufficient and as furnished for some definite work in the economy. Also it is reasonable and highly probable that this purpose is in connection with those tissues in the body derived from the same germ layer as the gland in question. In other words, the thyroid can have no direct function on any but tissues derived from the endoderm, the pituitary body on any but tissues derived from the ectoderm and so on. Table 1 gives all the tissues in the body derived from each of the germ layers. At once an apparently obvious objection arises to this idea. The absolute failure of the thyroid, for example in an infant, may result in a cretin. One of the characteristic symptoms of cretinism is failure of bones to develop properly, and in this case nearly all writers ascribe the bone failure to lack of thyroid and therefore ascribe proper development of bones to proper thyroid secretion. But bones are mesodermic structures and thyroid is endodermic and the theory seems knocked in the head. Nevertheless, another explanation is possible. Certainly bones do not develop properly in a young thyroidless animal, but this may just as well be an indirect result of hypothyroidism. If the thyroid's work is entirely with endodermic tissues it still has a very wide field, all the digestive tract for example. Now it may easily be, in fact must be, that if the digestive tract fails for lack of thyroid, so will all other tissues in the body, bones included. A similar explanation would suffice for all the

other known cases where an internal secretion derived from one blastodermic layer seems to affect tissues of a different blastodermic layer. In fact, as one might expect, all those internal secretions of which we have accurate knowledge actually do affect tissues of widely different origins, but it is just as easy to understand how that is possible indirectly as directly and far more rational.

With this idea as a basis many nutritional diseases at once assume a different aspect and a hopeful aspect instead of a hopeless. Just as an astronomer may be absolutely certain from the behavior of known planets that there must be another unknown planet of a certain size and position, so if we had only known all the facts about, say the thyroid, we could have predicted absolutely that there must be somewhere in the body, without actually having found it, a body like the parathyroid. Likewise we could write out an accurate description of myxedema without ever having heard of it or seen it. We do not, however, know all the facts about the thyroid or any of the other internal secretory organs. We do know a good deal about many puzzling diseases of a plainly metabolic nature, and even with our imperfect knowledge it is decidedly worth while to try to fit these facts together. Often there are too many facts missing to get a satisfactory result but occasionally, just as in a picture puzzle, one piece that has been before our eyes all the time fairly leaps into place and the whole thing is clear, so one long known fact may suddenly be set in its right relation, with the result that the disease and its logical cure are at once plain. An illuminating example of this is malaria. All the essential facts were known for years, but not until the mosquito, an apparently unrelated fact, was put with the other plainly relevant facts were the disease and its prevention at a stroke comprehended.

In studying various diseases of faulty metabolism it suddenly occurred to the writer that cancer is absolutely and essentially such a disease, and at once many things became clear. Let us first set down certain known facts concerning cancer.

1. It occurs originally only in highly specialized cells of epithelial type.

2. Overwhelmingly a disease of the downhill time of life when physiological death has begun its slow course.

3. Generally, perhaps always, a disease first attacking injured cells *i.e* trauma is a predisposing cause.

4. A disease increasing as the complexity of civilization increasingly puts extra strains on the organism.

5. A disease habitually progressing in its course at an ever accelerating pace to death of the organism.

6. A disease especially liable to recur even after most thorough removal of the original focus.

7. A disease generally more rapid the younger the patient; that is, the more vigorous the metabolism, the sooner is havoc wrought by any interference. Exactly as the wreck is more disastrous and speedy from interference with rapidly moving than with slowly moving machinery.

8. Most astonishing of all and perhaps least emphasized of all is the fact that this disease is almost unique in one thing—it is tissue reproduction at a time of life when normally every part of the body is physiologically dying and tissue reproduction failing. Why certain cells at this time should begin to reproduce themselves (atypically to be sure but still reproducing) has always been a puzzle. Not so puzzling, however, if we consider cancer a disease of faulty metabolism as will be discussed later. The growth of fat at about middle life seems to be the only normal growth at such time—and fat is not a high type of tissue.

If we now piece together all the known facts of cancer and all the known facts as to the internal secretory organs we shall evolve a theory of cancer satisfying all the known conditions, hopeful, and very much more convincing than any previous theory.

Let us start then with the idea that this unique reproduction of cells at a time of life when such reproduction has normally ceased, is due to a relative oversecretion of glands known normally at an early age to influence tissue growth. A serious objection at once arises. All cells and all secretions should fail as age advances and fail faster the more work they do. If cancer then is due to an overactive thyroid for example we should expect very many spontaneous cures, because here is a thyroid which has apparently done its full duty for fifty years suddenly doing a lot more work making old cells reproduce. This extra work should make the thyroid fail faster than the other body cells with the result that the longer the cancer grows the more hopeful the expectation would be that it would cease growing for lack of thyroid. But the opposite is the case. The longer the cancer grows the more hopeless it becomes. Therefore, the fault must be a relative failure if we are on the right track at all. Because this failure naturally would be accentuated the longer the individual lived. And failure in metabolism is also always more disastrous in the young than in the aging for manifest reasons. Thus the known fact that cancer is more rapidly fatal in the young than in the old is explainable. Also the fact that cancer is rare in the young and very common at the time of life when general failure begins. Further, relative failure would remain usually relative failure as age advances. Again relative failure is less disastrous the older the patient and we know that in the aged cancer is generally a slow process and may even last for years without appreciable change. Finally the rare but certain cases of spontaneous cure can be explained by a disappearance for some

reason of the relative failure which however must be a rare thing because it is difficult to see how naturally the relation can change much after middle life. Before discussing which gland or glands are probably at fault in a given case it is interesting to consider how the relative failure might have come about.

We know that overexercise always results in premature decay. A brain, a muscle, a blood vessel, a kidney cannot do too much work without resulting premature failure. Suppose then that a pituitary gland, for example, has for a long time been given more work than its fellow ductless glands. It will surely fail sooner than the others. Let us consider what this overwork might be. We know that the pituitary gland has a great deal to do with the proper growth and development of the skin. Now suppose the skin of the lip at a certain spot is for a long time and persistently injured by a hot pipe stem. The pituitary gland is presumably working overtime to repair this injury. Finally it can no longer do this and attend to its other duties because it is getting old and failing naturally. But it is failing faster relatively than the other ductless glands because it has had extra work for a long time. Though apparently a fanciful speculation, this is, I believe, really a factor, perhaps an important one, in the production of cancer of the lip. As to why in this case the cancer starts in the lip, it is not enough to say that it is because there has been trauma. It is common knowledge that cancer very often starts at the site of an injury, especially an injury long continued, repeated and generally mild as regards each individual act of injury. It is the repeated-drop-of-water-wearing-away-a-stone idea. This is not enough, for cancer does not always, nor indeed often, relatively, occur even at such a site. Put the two factors together, however, and the explanation seems more complete: the repeated injury and the failure of the particular ductless gland that controls the normal nutrition of the injured part. Nor is this yet enough. Why should any cell reproduce its kind at a time of life when all body cells are on the down track and physiologically dying? It seems an anomaly. Furthermore, except only the skin and squamous epithelium and possibly some columnar epithelium, which are not very common seats of cancer, none of the body cells subject to cancer can normally reproduce themselves after the period of beginning physiological death has arrived. No glandular cell once destroyed can be replaced by its neighboring gland cells at such a period. These are all highly specialized cells and have lost their original reproductive power, or rather delegated it to other special cells in the generative glands which are the real hereditary individuals. In the cells producing the spermatozoa and the ova reside the only real continuous life. All the somatic cells live as long as the individual only. They are creatures of a day, serve their purpose and die. The life is continued, reproducing, with all its inherited traits, only through these comparatively few highly specialized generative cells. And here is the anomaly: in cancer we have body cells abandoning their specialized functions and returning to the essential primitive function of all living things, reproduction; and that too when theoretically they should be physiologically dying. Therefore, there must be some factor other than failure of some ductless gland or glands, and trauma. I believe the explanation to be either one or both of two events. In the first place it seems highly probable that cancer *always* occurs at the site of cell injury for the following reasons:

1. Cancer certainly does occur often at the site of a known injury.

2. Organs which are most protected from injury are the rarest seats of cancer.

3. Organs which are most exposed to injury are the commonest seat of cancer, with one enlightening exception,—the skin.

4. The skin. But even here, remember that skin cancer is commoner by far in men than in women; men are far more exposed to skin injury than women. The reason why cancer of the skin is rare in spite of frequent injury will appear later.

5. Even those organs, apparently well protected, which occasionally are the seat of cancer may conceivably be injured, *e.g.* the kidney by stone, and the liver ducts similarly. Also it is confirmatory of this idea, that cancer of the gall bladder and the ducts is far commoner than of the liver itself.

(To be continued.)

MEASURED FEEDING FOR OLDER CHILDREN.*

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THE feeding of infants has become an art made possible by percentage feeding of milk and other foods, the constituents of which have been determined with almost absolute precision. Indeed exactness has been carried to such a degree that sometimes the physician's judgment is led astray by laboratory analyses. In the case of older children this condition does not obtain. In fact food is prescribed by the physician in most indefinite terms or else not prescribed at all. Such expressions as "Give the child good, nourishing food and plenty of it" or else "Be sure the child does not take anything indigestible" disposes of the whole question. Sometimes the physician may ease his conscience by adding

* Paper read and food exhibit shown at the meeting of the Suffolk District Medical Society, Jan. 22, 1913.

"Not too many sweets and no tea or coffee." It seems superfluous to state that this method of dealing with the diet of the growing child is a poor one, but it is met with so often that it demands most serious attention. Someone has well said "Why do physicians exercise so much care in prescribing drugs that are administered only occasionally and so little care in prescribing food which is taken daily." This neglect of the proper supervision of the feeding of older children is responsible for many serious diseases of early life and especially for many disturbances of the nervous system that are most difficult to remedy.

For the proper feeding of the child both physician and parent should have an adequate knowledge of food and food values. Three principal methods are in use for measuring food. In one all food is divided in portions of 100 grams and tables made out for the caloric values of each portion. This method is not readily adopted by either physician or parent, as it requires a mental readjustment of values which is a serious obstacle to its success. We buy food by the ounce or pound. All infant feeding in this country is by ounces. The change into other standards of measurements renders the method impractical except for laboratory work. A second method consists in adopting the ordinary serving as a unit of measure. This method is incorrect because what is an ordinary serving for one person is not so for another. This method also lacks an important factor present in the other two methods—namely, that of comparison, which is a great aid to memory. The third method, proposed by Irving Fisher in 1906, is called the callorie per cent. method. Prof. Fisher prepared tables indicating the amount of food necessary to furnish 100 calories of food value, such amounts being used as standard portions. For example, one slice of bread has a value of 100 calories; also one pat of butter or the lean meat in a lamb chop, or five ounces of milk or one slice of bacon. These units or multiples of units represent very closely the amount ordinarily taken at one serving, so that food can readily be served according to this plan. It gives at first hand, comparisons that help fix food values in the memory, the knowledge of a comparatively small number of which is sufficient to cover all our needs in any particular case. Sufficient information can be given in a short conversation to enable a person to raise or lower his diet 500 or 600 calories daily, which is an amount sufficient to cause a gain or loss in weight as desired.

For a child who is six to fourteen years of age, ten to twenty pounds under weight, and who continues his usual occupations, between two and three thousand calories of food per day are necessary for proper gain.

Having then a practical measure of food values, in order to make a child gain or lose body weight, the following steps are necessary: In the first place we must secure the co-öperation of the child. This can be obtained by what Dr. Morton Prince calls painting pictures. All girls want to be attractive and beautiful. They also want to do as other girls do, dance, swim and play tennis. Every boy wants to be athletic. The desire to play baseball and football can always be aroused in him sufficiently to cause him to do almost anything to gain a good physical condition for that purpose. Next there must be a sufficient control of the patient by parent or other person acting "in loco parentis" to secure a record of food taken and a regular report at stated intervals. The method I have found to work to greatest advantage with these older children can perhaps be best shown by the following case.

Thomas R., aged fifteen years, was a boy active in mind and body. He was ten to fifteen pounds under weight. Examination showed good physical development, all organs entirely normal. He was told that in order to make a good showing in athletics he ought to gain fifteen pounds. He at once said he was willing to follow any directions if he could gain, especially as he was going into a summer camp and wanted to stand well with the other boys. He was directed to keep a 48-hour list of all the food he ate and report at the end of that time. The 48-hour list showed the following points. The boy took no cereal, practically no milk, cream or butter. His average 24-hour amount was 1400 calories. He was told it was impossible for him to gain on that amount of food, that he must take at least 2000 calories. Asked why he took no butter he replied, "Why, does butter make any difference." He was surprised to know that a pat of butter was of equal value to a slice of bread. He did not like ordinary cereals, but he liked Pettijohn's breakfast food. He did not like milk but could take graham crackers and milk. Accordingly he was told to take butter and Pettijohn's daily, to take crackers and milk at 3.30 P.M. and before going to bed at night, to keep an accurate record of each day's food, and to report in a week.

At the end of the week his report showed he had followed the suggestions given and had averaged 1800 calories daily. His gain was two pounds. Encouraged by this gain, the following week he averaged 2100 calories, and gained two pounds more. The next week his average was 2180 calories and he gained three pounds, seven pounds in three weeks. At this visit he remarked "It does not matter what I take, does it, if I take enough." He said the day previous he found at night he had taken only 1500 calories, so he sat down and ate seven large figs, which raised his total to 2200. No indigestion resulted. The following week he kept no record, saying he just ate all he could and let it go at that. There was no gain in weight. The next week he did the same with no gain resulting. He then resumed keeping his record, which showed nearly 2200 calories. His gain was one and one-half pounds, making a total of eight and one-half pounds in the four weeks in which he kept his record of measured food, or an average of over a quarter of a pound per day. This boy took very little milk and no cream during this time, but was fond of nuts and figs. His average gain is what should be expected in a healthy boy. No change was made during this time in his occupation or habits. If he had not gained on 2200 calories it would have been strong evidence that he

had some organic disease, possibly some mechanical obstruction to respiration, or that he was suffering from toxic absorption, possibly from tubercular glands, or from diseased tonsils That is, the failure of a child to gain on a measured diet of 2000 or more calories per day is a valuable point in diagnosis.

The preliminary record is of importance in this method of feeding. First, it shows how much food is habitually taken; second, it shows the kind taken; third, and more important still, it shows what the child likes and dislikes making it possible to retain such foods in the diet as are agreeable to the child, simply substituting others for those that should not be taken, thus working along lines of least resistance, a most important factor in successful feeding. In the case of delicate girls, likes and dislikes, aversion to form, taste or smell, or associations of certain foods with unpleasant events, may be almost insurmountable obstacles in securing proper nutrition. Their appetites are fickle, leading them to live almost wholly on carbo-hydrate food, the proteid being far too low for proper growth. Cause and effect form a vicious cycle often made evident by this simple preliminary list.

The 48-hour record may also show mistaken ideas of parents as regards feeding. They frequently exhibit a certain pride in thinking that what does not agree with them will not agree with their children. Mistaken ideas of food values may lead to the total exclusion from the diet of many important articles of food.

During the past year a girl of fifteen came under my care because she was undersized and delicate. For ten years she had taken almost daily a large order of clear soup, the stock of which was made from the most expensive cuts of meat, the father thinking it especially nutritious. After taking a serving of such soup she ate very little else, so that her 24-hour ration was lessened by an appreciable amount. Neither parent nor physician seemed to realize that it requires nearly a quart of such soup to yield 100 calories.

Having from this 48-hour record a knowledge of the kind of food taken and its amount, it is an easy matter to increase or decrease the 24-hour intake by simple changes. For example, a girl of nine was twenty-pounds under weight. Her 24-hour amount before any suggestions were made to her about her diet was 1400 calories. Her breakfast consisted of four tablespoonfuls of cream of wheat, two teaspoonfuls of sugar, two soft boiled eggs, one roll, one-half pat of butter, and one cup of tea, making a total of 550 calories. (See table I.)

TABLE I.

		Cal.
Cream of wheat	4 tbsp.	100
Sugar	2 teasp.	50
Eggs (soft boiled)	2	200
Roll	1	100
Butter	½ pat.	50
Tea (milk and sugar)	1 cup	50—550

By adding cream to the cereal and by having the eggs scrambled, which allowed more cream and also butter, 250 calories were added to the breakfast. By substituting a cup of cocoa instead of the tea 200 calories more were added, together practically doubling the food value of the meal. (See table II.)

TABLE II.

		Cal.
Cream of wheat	4 tbsp.	100
Cream (16%)	2 oz.	100
Sugar	2 teasp.	50
Eggs (scrambled) cream 1 oz., butter	2 1 pat	350
Toast	1 slice	100
Butter	½ pat.	50
Cocoa	6% oz.	250—1000

Similar changes were readily made in the other meals, thus raising the 24-hour amount to above 2500 calories, an amount necessary to cause the child to gain from one to two pounds a week.

Such changes do not force the child to take too much food at any one meal, and, therefore, there is little danger of causing indigestion. In fact, in following delicate children with measured feeding I have seen no case of indigestion result. Children under weight seem to have a remarkable ability to digest food, taking as high as 3500 calories without digestive disturbances. While on the other hand, in the case of children who are overweight, symptoms of indigestion disappear in a remarkable manner with a diminution of the day's ration.

Measured feeding shows almost invariably that a child without organic disease is underweight because he does not eat enough and overweight because he eats too much. It is a far too common occurrence to find children taking tonics, transported to different climates, given all kinds of treatment, to make them gain in weight, when a measurement of their food shows they are taking from 1000 to 1400 calories daily, an amount too small for them to possibly gain unless actually confined to bed.

In health the question of a proper proportion of protein, fat and carbo-hydrates, namely that of a balanced diet, needs attention only in a general way, as taste regulates this in most instances. For example, bread which represents protein and carbo-hydrate, requires butter (fat) to make it palatable. Meat, composed of fat and protein, requires potato (carbo-hydrate) to please the taste. So the combination of bread and butter, meat and potato, bread and milk, represent physiological needs that taste recognizes and controls.

TABLE III.

		P.	F.	C.H.	Cal.
Cream of wheat	4 tbsp.	12	3	85	100
Cream	2 oz.	7	84	9	100
Sugar	2 teasp.	0	0	50	50
Eggs (scrambled)	2 tbsp.	68	278	4	350
Dry toast	1 slice	13	6	81	100
Butter	½ pat.	0	50	0	50
Cocoa	1 cup	34	128	88	250
Total calories		134	549	317	1000
Total grams		33	59	78	

In cases of nephritis, diabetes and duodenitis with jaundice, measured feeding applies to the different elements of food equally well as to the total quantity taken.

CONCLUSIONS.

The diet of all improperly nourished children and occasionally of well nourished children should be checked up and controlled by measured feeding.

A preliminary 48-hour list, kept without any suggestions from the physician, shows the quantity and kind of food habitually taken as well as the likes and dislikes of the child.

Changes in diet should be made gradually along lines of least resistance.

Cooperation of both child and parent is necessary for successful feeding. Both should be disabused of ideas and prejudices which interfere with proper nourishment.

The average gain on diet alone of children who are under weight should be from one-half to two pounds per week. If no gain is made, organic disturbances or toxic absorption should be suspected.

Serious errors in diet cannot be detected by asking the child about his appetite or the mother about the diet given. Food must be recorded and measured in order to show how much is taken.

Almost invariably the overweight child is overweight because he eats too much, and the underweight child is underweight because he eats too little.

Measured feeding is an important therapeutic test.

This exhibit shows about sixty common foods of the same nutritive value (100 calories). The labels have 100 small squares marked on them and the proportion of proteid, fat and carbohydrate is shown in colors, protein red, fat yellow and carbo-hydrate blue.

Liquid foods, as beef juice, orange juice, consommé, milk modifications, cream, etc., are put in bottles and preservatives added. Soap is used to represent butter and cheese. Meat and fish are represented by clay models. Artificial fruits were obtained in many instances of the proper size at shops where they are sold as favors. Dry foods, as shredded wheat and crackers, require no substitutes.

By studying the exhibit it is readily possible to visualize the amount of each food necessary to make 100 calories. For example, it requires nearly one quart of consommé or one whole bunch of celery or five ounces of milk to equal in value one pat of butter or one egg or the meat in an ordinary lamb chop.

On the right side of the upper table are three sets of graduates. The left set shows the amount of protein (60 grams) fat (40 grams) carbo-



FOOD EXHIBIT.

hydrate (250 grams) required in 24 hours by the average child six to ten years old (Koenig). The middle set shows the amounts required by an adult woman (Koenig). The right hand set shows the amount of protein (160 grams) fat (125 grams) carbo-hydrate (550 grams) taken by a child of nine years, a member of my feeding class, who was under weight twenty pounds but gaining rapidly, the total being more than double the amount taken by the adult woman.

Table I shows the breakfast of a girl aged nine before any suggestions were made as regards her diet. Table II shows breakfast modified by suggestions made to increase its caloric value. Table III shows the number of grams of proteid, fat and carbo-hydrate taken with each article of food. Table IV shows first part of a simple list of food (in preparation) to be used for practical reference in computing 24-hour amounts.

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List of foods shown in exhibit giving weight of 100 calories of each in grams and ounces; also showing the calories in each represented by proteid, fat and carbohydrate.

	Weight.		Calories.			Total.
	Grms.	Oz.	P.	F.	C. H.	Cal.
FRUIT.						
Orange, one very large	270	9.4	6	3	91	100
Apple, one large	206	7	2	6	92	100
Pear, one large	173	5.4	4	7	89	100
Banana, one large	100	3.5	5	5	90	100
CEREALS.						
Bread, white or brown, full slice	38	1.3	12	16	72	100
Rolls, French or Vienna, one	35	1.2	12	7	81	100
Zwieback, 3 slices	23	.9	9	21	70	100
Crackers, Uneeda Biscuit, four	24	.9	9	20	71	100
Crackers, Graham, three	23	.8	9	20	71	100
Force, 6 tablespoonfuls	30	1.1	10	3	87	100
Shredded wheat, one	27	.9	13	5	82	100
Grape nuts, 3 tablespoonfuls	27	9.6	13	2	85	100
Cream of wheat, 4 tablespoonfuls	156	6	12	3	85	100
Macaroni, 4 tablespoonfuls	110	3.8	14	15	71	100
Wheat or barley flour	27	1	12	3	85	100
MEAT.						
Lamb chop, edible part	50	.96	24	76	0	100
Steak, tenderloin, size chop	35	1.3	34	66	0	100
Roast lamb, size 2 chops	27	1.8	40	60	0	100
Bacon, one slice	15	.5	6	94	0	100
FISH (UNCOOKED).						
Cod, 2 x 2 x 3/4 in.	105	3.5	90	3	7	100
Blue fish, 2 x 2 x 1/2 in.	68	2.3	71	29	0	100
Halibut, 3 x 1 1/2 x 3/4 in.	83	3	70	30	0	100
EGGS.						
Yolk, 1 1/2 yolks	27	.75	17	83	0	100
White, 7 eggs	181	6.25	100	0	0	100
Egg, whole, one	59	2.1	32	68	0	100
VEGETABLES.						
Potato, one large	86	3	11	1	88	100
Corn, one ear	100	3.5	13	10	77	100
Peas, canned	178	6.3	24	4	72	100
Cabbage, uncooked	310	11	20	18	72	100
Celery, 1 bunch	540	19	24	5	71	100
Tomatoes, 4 medium	430	15	15	16	69	100
Succotash, 4 tablespoonfuls	100	3.5	15	9	76	100
Lima beans, 4 tablespoonfuls	126	4.4	21	4	75	100
String beans, 8 tablespoonfuls	480	16.5	15	48	37	100
DAIRY PRODUCTS.						
Butter, 1 pat	13	.44	1	99	0	100
Cheese, American, 1 1/2 cu. in.	22	.7	25	73	2	100
Milk, cows,' average (3.50 : 4 : 4.50)	140	5.	20	52	28	100
Skim milk, (3.60 : 1.80 : 4.50)	200	7.	30	33	37	100
Butter-milk, (3.60 : 0.50 : 4.06)	278	9.	41	13	46	100
Top milk, 7%, (3.50 : 7 : 4.50)	102	3.75	15	66	19	100
Milk modified, (1.25 : 2.50 : 6.50)	181	6.33	10	42	48	100
Cream, 16% (3.25 : 16 : 4.05)	56	2.	7	84	9	100

LIQUIDS						
Consomme	830	29	84	0	16	100
Whey	285	10	11	25	64	100
Orange juice	188	7	0	0	100	100
Beef juice (warm process)	150	5.3	78	22	0	100
Cocoa	81	2.9	13	52	35	100
MISCELLANEOUS						
Olive oil	11	.5	0	100	0	100
Olives, seven	32	1.1	1	84	15	100
Prunes, three	32	1.14	3	0	97	100
Dates, three	28	1.1	2	7	91	100
Fig, one medium	31	1.1	5	0	95	100
Almonds, eight	15	.5	13	77	10	100
Peanuts, 13 double	18	.6	20	63	17	100
Marmalade, 1 tablespoonful	28	1	1	2	97	100
Sugar, milk	25	.9	0	0	100	100
Sugar, granulated	24	.86	0	0	100	100
Macaroons two	23	.8	6	32	62	100
Lady fingers, 1½	27	.95	10	12	78	100
Strawberry shortcake, av portion	100	3.5	20	110	220	350
Chocolate eclair	60	2	12	100	188	250
Charlotte russe, one	60	2	10	80	160	250
Cranberry pie, small	252	8	32	228	440	700

LEPROSY. SOME NOTES ON SYMPTOMS.

BY JAMES A. HONEIJ, M.D., PENIKESE, MASS.,

Penikese Island Hospital.

THE study of leprosy has been so largely devoted to the bacteriology and pathology of the disease that the many clinical aspects presented have not been emphasized. The disease has many interesting manifestations that should be studied and recorded, until such time as definite conclusions may be reached.

From practically no early symptoms, or symptoms that are indefinite and vague, the gradual progress of the disease carries with it a variety of symptoms, subjective and objective, to the final stages of the disease which are indeed complex. After the disease is definite, in both the tubercular and anesthetic types of leprosy, almost every new lesion is accompanied with some systemic disturbance. The more frequent the lesion the greater the upset to the patient, and the severer the lesion the more distressing and serious are the accompanying symptoms.

Observations made here on fifteen patients hardly warrant authoritative statements at this time, but these notes are presented for whatever value or interest they may have.

Stages of the disease can hardly be spoken of, unless it means the merging of one type into another. The disease is in the beginning insidious, and later so progressive that any attempt to define stages must necessarily be purely fictitious. So-called physiological disturbances such as headache, constipation and minor ailments, may often be viewed as part of the disease, but are not, necessarily, unless they are regular in onset or similar in most of the cases. The isolation and depressing surroundings may be responsible for the many temperamental attacks, so common among the patients here. Lack of exercise, mental torpor, national idosyncrasies and other real, or imaginary, conditions may all affect the patient. Consequently it is necessary to be careful not to assume that certain symptoms or mental states are part of the disease.

Lesions. The theory has been advanced and somewhat substantiated, that the original lesion is on the nasal mucous membrane in the form of an ulcer. The examination of every patient, with the exception of one anesthetic type case, showed ulceration or thickening of the nasal mucous membrane, some but slightly, but the majority extensively affected. The symptoms present and complained of were, difficulty in breathing through the nose, some irritation and occasional pains, discomfort during the sleeping hours and the resulting dryness of the throat.

Ulcers with a pus or watery serous discharge are, of course, the common lot of all lepers, with the exception usually of the anesthetic cases. These ulcers vary in size, are painful only in the beginning, but later may be almost entirely anesthetic, with a surrounding ring of one-half inch or more, also anesthetic and sometimes pigmented. Often and usually before the appearance of an ulcer or ulceration on the feet or hands, there is a preceding swelling accompanied with severe pain, elevation of temperature even up to 104°, rapid pulse, headache, nausea, vomiting and true chills. As soon as the swelling has become strictly localized, and an ulcer results with free discharge, the symptoms disappear, leaving the patient for several days in a depressed, weakened condition. Areas of ulceration may be in a finger, a hand, or extend from the knee to the foot and include both feet. When healing in such cases takes place, the skin is enormously indurated and largely anesthetic. The symptoms are severer in these cases than in the case of the occurrence of a

single ulcer. Alternate swelling and ulceration produce disfigurement and deformities; when the fingers are affected the finger nails become thickened, later on undergo softening, and ultimately result in the loss of the finger tips. Tremendous enlargement of the hands, forearms, ankles, feet and parts of the face are common features in the typical cases of tubercular leprosy. Constant inflammation of the skin results in its becoming thickened, forming ridges, folds and nodules, so that the features of the face become entirely changed. Such changes are gradual and slow and are accompanied by practically no pain or other symptoms.

The softening and breaking down of nodules or small swellings is fairly common. These are often slightly painful due probably to pressure and to some extent, to the involvement of the nerves. In the pus and discharges the acid fast bacillus of leprosy and a micrococcus are always found. Without being visible to the eye there may be numerous small nodules or infiltrations underlying the skin, which are only discovered when the hand is firmly stroked along the parts.

Bullae or blebs may occur naturally in the course of the disease or may be induced by friction or injury to the skin, as by scrubbing or washing. These have occurred only on the hands and feet. The bullae vary in size from a dime to areas covering the whole surface of a finger, are considerably elevated and filled with a clear amber colored fluid, which contains both the leprosy bacillus and a micrococcus. These bullae have occurred only in the tubercular type of cases; they occur rapidly and may last several days, leaving an inflamed, watery surface, which is usually easily amenable to treatment. An eruption occurs at irregular intervals over the back, shoulders and chest, similar to the rash that accompanies digestive disturbances, and not unlike that of ivy poisoning. It usually lasts the better part of a week, and is accompanied by true chills in most cases, elevation of temperature and pulse, malaise, vague pains, headache and depression. This phenomena has been alluded to as a malarial condition, but in truth does not in any way resemble typical malarial fever attacks. An examination of the blood does not reveal the malarial parasite or bodies analogous to them.

In the nature of an eruption are the occurrences of pustules containing both the leprosy bacillus and a micrococcus. These pustules may occur singly and later form an ulcer, may coalesce, or may occur in crops, develop, break down and heal, leaving slightly pigmented spots as a result. In two cases this occurred all over the limbs, upper and lower, and continued for nearly two months. The attack was accompanied by fever and some pain, and resulted in numerous pigmented areas. In both the tubercular and anesthetic cases, small pigmented spots occur without apparently preceding open, active inflammation or ulceration. At or near the lesions, the skin may be excessively dry and scaly, or it may be moist and secretive, and is most typical on the hands, legs and feet.

In the nasal secretions, discharges from ulcers, fluid from bullae and in the pus from pustules, the acid fast bacilli of leprosy has been found.

Pain. This symptom varies so considerably in all patients that it is probably of little value. It differs in degree during certain phases of the disease and the patient's general health has much to do with it. The difficulty in ascertaining the degree of pain is increased by anesthetic and hyperesthetic areas. Neuralgia or so-called rheumatic pains of a very indefinite origin are common, excepting with the anesthetic cases. These pains are most frequently complained of at night time, severer in cold weather, of varied duration, and apparently not associated with other symptoms. Often during a febrile attack such neuralgia-like pains are present but are not to be confused with the same pains as stated above.

Localized pain with swelling and inflammation usually precedes an ulcerative process. It may be totally relieved when there is a free discharge and subsidence of the swelling, or it may lessen and be of longer duration. The pain is often so severe that sedatives and opiates have to be prescribed. The accompanying symptoms have already been mentioned.

Pain as a result of nerve involvement in leprosy, such as occurs with the optic nerve, will not be dealt with here. Pain, associated with all the signs of inflammation of the eyes and eye lids, is usually severe, the itching, burning and lacrymation being especially troublesome, and does not respond easily to treatment. The eyesight is affected only after a long time, when the inflammation and its after results, affect the deeper tissues of the eye. Headache, unless occurring with or during febrile attacks, are of so obscure an origin, that its analysis is useless.

Burning and itching are common complaints. Burning or warm sensations are usually so vaguely described and so indefinitely localized, that they may simply be mentioned here as a symptom commonly spoken of in leprosy. Itching and biting sensations are not rare and are usually referred to the back and abdomen; they are generally associated with a dry condition of the skin. The itching is readily relieved with salves or ointments, and consequently is probably not indicative of actual peripheral nerve involvement.

Sweating. It has been stated that sweating is a symptom common to leprosy, but from the cases studied here it has been impossible to determine it as such. The systemic disturbances are so marked in the advanced stages of the disease, when nervous symptoms, exhaustion, weakness and the anxiety of the patient are all present, that it is questionable indeed whether we should view sweating as a symptom of the disease. Sweating, as is well known, is concomi-

tant with chronic exhausting diseases, such as tuberculosis, and it is in all probability the same with leprosy. In leprosy sweating often follows the severe chills during the febrile attacks when the patient is certainly in a low physical condition.

Chills. The patient may at irregular intervals suffer from true chills, as has already been mentioned, and at such times as active inflammatory changes take place, and tissues break down, and ulcers occur. It is possible to consider such chills as the result of the softening and breaking down of nodules and other areas of infiltration and that the bacilli, or their toxic properties, are then set free and taken into the blood stream with the resulting disturbance. Chills with septic infection, typhoid and malaria, are of course well known, and the analogy here is not at all far drawn. These chills are often severe, with great systemic disturbance, the patient is prostrated, the temperature may rise three or four degrees or suddenly drop to subnormal, with the pulse essentially agreeing with the temperature. The chills last from a few minutes to the greater part of an hour, and may occur as often as four or five times in twenty-four hours; or again there may be a single chill, without recurrence for months.

Apart from the occurrence of true chills, chilliness is often a complaint, and more marked with the patients who are anemic. Chilliness may be complained of on the brightest and sunniest days and when the patient is free from all other symptoms and is not associated with digestive or intestinal troubles. The question of the blood picture during true chills will be dealt with in another note. In the anesthetic cases here, no chills or feeling of chilliness has been noticed, it being most noticeable in the far advanced tubercular leprosy patients.

NOTES AND CONCLUSIONS.

A. When the disease is advanced the patient's health varies daily; he feels exceptionally well one day and the next presents every symptom and appearance of a seriously sick person.

B. In comparison to the severe symptoms and general appearance of the patient, physical examination will reveal nothing. Lungs and abdomen are normal, and with the exception of a soft systolic murmur over the precordia, the heart is normal.

C. During eruption the skin is usually hot and dry.

D. Extreme mental depression at irregular intervals and nervousness are characteristic of every case.

E. Ulcers may heal rapidly and continually, or, as is seen in one or two cases, they become chronic and refuse to respond to treatment. Medicinal treatment varies in each case; in leprosy this fact is particulary accentuated.

F. The clinical symptoms of leprosy, although somewhat confused and often indefinite, are, nevertheless, correct symptoms of the disease and in the care and treatment of leprosy patients, are to be carefully observed and seriously considered. The consideration of the pulse, temperature and blood are so important and instructive, that a more careful study is being made and will, in all probability be reported in the future.

In conclusion I wish to thank Dr. Frank H. Parker, superintendent Penikese Island Hospital, for his kindly advice and criticism in the preparation of this paper.

INSTITUTIONAL DENTISTRY: METHODS: RESULTS. REPORT NO. 2.

BY FREDERICK A. KEYES, D.M.D., BOSTON.

In the issue of the Boston Medical and Surgical Journal of July 25, 1912, there was printed an article entitled "Institution Dentistry: Methods; Results," in which I submitted to the medical profession a report of dental work done at St. Vincent's Orphan Asylum, Boston, and its relation to the infectious diseases of childhood. This statistical report, showing the great decrease of infectious diseases at the orphanage after the establishment of a dental infirmary, amazed even the most enthusiastic propagators of oral hygiene.

Owing to the frequent inquiries regarding the progress of the work since the publication of this article and the many urgent requests for further information, I have deemed it expedient to submit the following report of the last 18 months' work.

The number of children at the Asylum January 1 1912.....	227
Children received during the year	76
Children cared for by the Home during the year.....	303
Children taken out by relatives...	121
Children in Asylum Jan. 1, 1913..	182

The system of dental work remains the same. The inspection of the children monthly to see that they are keeping their mouths clean and the admonition of the few that are negligent in this respect has been rigidly observed. The tooth brush brigades, led by the older girls, are accomplishing the desired results, *i.e.* teaching the younger children how and when to brush their teeth, so that the habit thus formed in childhood may continue throughout life. A nitrous oxide oxygen apparatus has been installed and found to be a most valuable, though expensive, adjunct in the elimination of pain.

The following statistics contain the record of work done for the past 18 months. For those who have not read the first article, statistics for the first 18 months are included,—with a partial account of the money expended for materials necessary during that period:

	Nov., '10 to May, '12	May, '12 to Nov. '13
Total number of different patients examined	349	303
Total number of cleanings	272	350
Total number of cement fillings	25	45
Total number of amalgam fillings	72	76
Total number of cement amalgam fillings	69	60
Total number of temporary fillings	130	180
Total number of oxphas cu. fillings	9	57
Total number of teeth extracted (temporary)	290	102
Total number of teeth extracted (permanent)	131	51
Total number of abscesses opened	42	21
Total number of gums cut for permanent teeth	19	9
Total number of plastic operations	3	0
Total number examined and treated	1421	1254
Total number of fillings (including temporary)	315	418
Total number of teeth extracted (including temporary)	421	153
Total time spent (hours)	210	190

Account of Expenses.

Initial cost (chair, engine sterilizers, brushes, etc.)	$125.00	
Supplies for 18 months	66.63	
Nitrous oxide oxygen apparatus (initial cost)		$86.15
Supplies for 18 months, including gas and oxygen		75.00
Totals	$191.63	$161.15

A study of the above tables will show the great number of teeth filled and the few extractions necessary in the last 18 months in comparison with the preceding 18 months. It is hoped that, after all cavities in the mouths of the permanent inmates of the Asylum are filled, the future work will be solely prophylactic treatment (cleaning). But every year there is an influx and exit of from 75 to 100 new children. Therefore, extraction and filling will necessarily be the first important factor. After filling and extraction are completed, the cleaning of the teeth every three months by the dentist and daily by the patient is expected to prevent future caries in the children's mouths. Contrary to the usual routine, dental repair work is done on the older girls in preference to the younger ones, since the older girls are liable to leave the Asylum first and it is our desire to send them out into the world with mouths free from all carious cavities. Odontalgia has been practically eliminated.

Below is printed a table containing the number of infectious diseases occurring at the Home in the last 36 months, together with statistics of previous years.

RECORD IN REGARD TO INFECTIOUS DISEASES.

	1907 1908	1908 1909	1909 Nov., 1910	Nov., 1910 Apr., 1911	Apr., 1911 May, 1912	May, 1912 May, 1913	May, 1913 Nov., 1913
Diphtheria	6	2	1	0	0	0	1
Mumps	8	3	10	4	0	0	0
Scarlet fever	17	8	12	8	0	0	0
Pneumonia	3	5	4	6	0	0	0
Measles	24	50	40	25	0	0	6
Tonsillitis	19	16	8	3	0	0	0
Whooping cough	7	2	2	0	0	0	0
Chicken pox	15	17	10	6	0	0	0
Typhoid	0	0	0	0	0	0	0
Croup	4	0	0	0	0	0	0
Spinal meningitis	0	0	0	0	0	0	0
Scarlatina					0	0	0
Bright's (acute)						0	0
Hemorrhage							0
Tuberculosis of eye					1		
Tuberculosis of lungs					1		
	103	103	87	52	2	0	7

From the above data it may be seen that in the last 36 months only 7 cases of infectious diseases have occurred at the Asylum. Of these 6 were measles, one of which was contracted before or immediately after admittance to the Home. The disease spread to 5 children, permanent inmates of the Asylum. The mouths of all six patients were carefully examined and found to be in need of dental treatment. Whereas in previous years 40-50 children were stricken down with measles this year only 5 children contracted the disease. The one case of diphtheria also occurred in a new girl. Examination of her mouth showed great need of dental work.

What is the cause of this elimination of disease from St. Vincent's Orphanage immediately after the beginning of dental work and the continuing of this immunity for a period of three years? Dentists need no longer claim to be great prophylactic agents in the field of medicine; for the above statistics demonstrate convincingly the immunity acquired from infectious diseases of childhood after the proper treatment of the child's oral cavity.

For many years dentists have spent much time and effort in compiling and presenting statistics showing the relation existing between carious teeth and infectious diseases of childhood. In many large cities these efforts are bearing fruit. It is, however, hard to understand why there should be so much delay in some parts of this country, especially in Boston, in meeting this problem. At present there exist in other municipalities many methods of handling the public school question, most of which are still in the experimental stage but are nevertheless accomplishing a great deal of good. In Boston, however, the dental question is most unsettled. Spasmodic attempts, most of them theoretical, to remedy this defect in the past have been unsuccessful. At present, even with the new Forsyth Dental Infirmary, the results predicted will be merely scraping the surface. The

Forsyth Dental Infirmary in full working order will be able to handle only a part of the carious cavities now existing in the mouths of the Boston public school children. The good that is to be obtained from this great philanthropy cannot be over-estimated; but without the co-operation of the City of Boston and the medical profession the desired results will fall short.

Establishment of school dental clinics working harmoniously with the Forsyth Dental Infirmary, to my mind, is essential in handling the 100,000 children in the Boston public schools. The 64 chairs at the Forsyth Institute are inadequate to meet the needs of the public school children.

Paid dental inspectors should be appointed by the City after competitive examinations similar to those now in vogue for the school physicians. To permit school nurses to act in the capacity of dental inspectors is indeed a sad commentary upon the importance of this great field of medical science. Nurses are no more competent to judge between dental conditions needing immediate care than they would be in diagnosing adenoid or tonsillar diseases.

Paid dental inspectors are necessary to handle the public school question. Even though the time has not yet come when school dental infirmaries are to be established necessitating dental inspectors in the public schools, even now under the present conditions the Forsyth Institute is in dire need of inspectors in the schools to send them cases needing immediate treatment.

Dentists are very apt in their over enthusiasm upon this subject to momentarily offer their services free to the municipalities. But no work of any great value requiring all a man's working hours was ever well and properly done without monetary compensation.

Progress in school dentistry must come. Further agitation should not be necessary. Physicians should co-operate with dentists and school authorities to demand that steps be taken to eliminate the present conditions existing in the mouths of the public school children.

A FURTHER REPORT ON THE MAYO-GILLIAM OPERATION FOR RETROVERSION OF THE UTERUS.

BY HAROLD W. BAKER, M.D., BOSTON,

Surgeon to Out-Patients, Free Hospital for Women, Brookline, Mass.

As pointed out in a previous paper,[1] the best method for the treatment of retroversion of the uterus, is the operative treatment, wherein the Mayo modification of the Gilliam technique is used. The steps of this operation have been gone over in the previous paper, and we do not need to refer to them again.

The three classes of operations performed by the best authorities for retroversion, may well be described here with their results. They are:—

1. Hysterorrhaphy, which may be divided into two classes, namely
   a. Suspension.
   b. Fixation.
2. Intraperitoneal shortening of the round ligaments.
3. Extraperitoneal shortening of the round ligaments.

By suspension, we mean the mere suturing of the uterus to the peritoneum. This method has proved by long and extensive use to have too many recurrences to justify the continuance of this attempt to cure. This fact was shown in the first paper[1].

By fixation, we mean the suturing of the uterus to the abdominal fascia. This procedure, on the other hand, has demonstrated that it actually does accomplish the purpose for which it is done. The objection to fixation is not failure to do what it purports to do, but that complications from it[6] are too serious and numerous to warrant doing it during the child-bearing period. There is a fault common to both suspension and fixation, in that they are not anatomically justified, for the uterus is normally a movable organ, and they both attempt to immobilize the uterus.

We believe that the intraperitoneal shortening of the round ligaments, as done by Baldy[4], Webster,[7] Coffey[3], and others, is giving much better results than it did five to ten years ago, when we saw a recurrence in thirty-one out of thirty-five cases[1]. We object to this procedure, however, as it utilizes the weakest part of the ligaments to do the heaviest part of the work. The chance for recurrence is still very great.

The extraperitoneal shortening of the round ligaments, the Alexander type of shortening[2], is good, but it has a moderately high percentage of failure. The reason for this percentage[1], is due in all probability to the fact that adhesions of the uterus are not easily recognized even when the patient is fully anaesthetized. The operation utilizes the strongest part of the ligaments, and it does not interfere with the normal motility of the organ. There is one distinct disadvantage to this operation, and that is that the surgeon is unable to examine the other abdominal organs.

We have begun to emigrate from the old idea that the best surgeon is the one who makes the smallest incision, and who does the least exploring. The patient is apt to embarrass her surgeon, a year or two later, if she comes back to him (or to another), with other abdominal trouble which might have been found and relieved by abdominal exploration at the time of the former operation. We prefer to know that the abdomen is completely negative, rather than to go on any assumption. The knowing adds nothing to the risk of the operation, and it adds much to the mental comfort of the patient, and

incidentally of her surgeon. We discard the idea that because a patient has one apparent trouble, she may not have another less apparent one.

The Mayo- modification of the Gilliam operation[5] for retroversion, comes nearest of all methods, to restoring the uterus and its supports to their anatomically normal position. It does this, moreover, by utilizing the strongest part of the round ligaments. It also permits the free exploration of the abdomen. At the present time, from personal knowledge of the conditions of the pelvis of all the cases cited both in this paper and in the previous one,[1] we believe that the after results of this technique are as good if not better than those of other operative procedures. These cases are taken from the clinic of The Free Hospital for Women, Brookline, Massachusetts, and from private practice. In support of our beliefs, we desire to submit the following table of cases, dividing the cases into groups of six months each, as regards the elapsed time since operation.

TABLE OF RESULTS FOLLOWING THE MAYO-GILLIAM OPERATION FOR RETROVERSION.

No. Mos.	No. Ops.	Children.	Pregnancies.	Recurrences.
0-6	25	0	0	1
7-12	24	0	0	0
13-18	28	0	0	0
19-24	11	1	1	0
25-30	16	3	3	0
31-36	21	1	1	0
37-42	6	0	0	0
43-48	13	3	3	0
49-54	3	0	0	0
55-60	21	2	2	0
61-66	2	2	2	0
67-72	1	0	0	0
Totals	171	12	12	1

A study of the table shows clearly that the uterus suffers no inconvenience on account of the Mayo-Gilliam operation. None of the women have had any further trouble referable to the uterus, and the ten who have had one or more pregnancies, have had perfectly normal labors in every way. Two of the women have each passed through two uneventful pregnancies, their labors presenting no abnormal features. Putting it in percentages, we find 7% of our cases have gone through pregnancy without any trouble, and as they all were free from complication of any kind, 100% of the pregnant cases had no trouble from the operation. We have had only one half of one percent of recurrence. This one recurrence is easily understood, as the patient developed the retroversion about three months after operation, and we believe that it was due to a cutting out of the suture material used. Later, she was again subjected to a laparotomy for another trouble, and a second Mayo-Gilliam performed, and this time no recurrence took place.

In conclusion, we must, with these results before us, reaffirm our statement that the Mayo-Gilliam operation for retroversion has proved to be the best of any from anatomical, functional, and curative viewpoints.

We wish to thank Dr. Donald V. Baker for his kind assistance in the compiling of this paper.

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Clinical Department.

APPENDECTOMY IN A BLEEDER. BLOOD IN VOMITUS AND STOOLS. MASSIVE HEMATOMA AND ECCHYMOSIS. RECOVERY.*

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In the early evening of August 11, 1913, I saw Mr. H——, a travelling salesman of 25.

Three days before he felt "logy" and after a hurried luncheon of crackers and cheese he experienced a sense of fulness and distention of the upper abdomen which persisted throughout the afternoon and evening but did not prevent sleep. The following morning he had pain in the epigastrium but no nausea or vomiting. In the afternoon the pain shifted to the lower abdomen and his head began to ache. Yesterday he felt feverish, and pain in head and lower abdomen persisted. In the evening a dose of salts was taken. This morning he felt better, headache had gone, only tenderness in right lower quadrant remained. This afternoon fever and pain in lower abdomen returned. There has been some nausea but no vomiting. The pain has become acute. Bowels had moved daily till today, movements painless and without blood. No difficulty with urine. No cough or pain in chest. He had never previously had any "indigestion." A year ago he was under my care for subdeltoid bursitis. One brother had been operated for appendicitis in the presence of peritonitis and had died.

A tall, spare youth with flushed cheeks, hot skin, dry lips, and tongue with slight white coat. Pupils equal and reacted equally to light. Heart and lungs showed nothing abnormal. Abdomen was flat, not distended, tympanitic throughout with much tenderness and spasm in right lower quadrant but no palpable mass. Liver, spleen, and kidneys not felt. No costovertebral tenderness. Lateral compression of lower costal cage not painful. No inguinal hernia. Genitals negative. Knee jerks equally active. No ankle clonus. No edema or jaundice. Questionable tenderness by rectum high on right. Temperature 101. Pulse 100. White count 16,000. Urine, high

* Reported before Surgical Fortnightly Club, Nov. 25, 1913.

color, clear, acid, sp. gr. 1022, slightest possible trace of albumin, no sugar. Abdominal pain was relieved by lying down with right leg drawn up.

A diagnosis of acute appendicitis was made and two hours later he was on an operating table under ether (preceded by nitrous oxide) with pin-point hemorrhages over the freshly shaved pubes. My assistant's apology was dismissed with pleasantry about hospital razors. A 3½-inch incision was made over the right rectus muscle midway between umbilicus and pubes. The anterior sheath of the rectus cut, the muscle bluntly divided longitudinally, and the deep epigastric picked up either side of the wound, cut, and double tied. The wound was a pool of blood. A number of vessels were picked up but as the ooze seemed general a sponge was laid against either side of the wound and held by retractors. The peritoneum was opened without incident. The appendix was felt behind the cecum. The cecum was raised. Although the manoeuvre was gentle, a patch of hemorrhage immediately developed in the wall of the cecum and tongues of blood spread peripherally apparently just beneath the serosa. A short, swollen, injected, unruptured appendix was delivered rather readily, after breaking a few fine, fresh adhesions and snapping and cutting an old band. The meso-appendix was clamped and cut in sections from tip to base. The right quadrant was then filled with blood. This was sopped out, the appendix tied off, cut, and the stump touched with carbolic acid and alcohol. The clamped portions of meso-appendix were tied off. Still the mesentery-line oozed smartly. Several extra ties and a couple of interrupted sutures checked but did not stop the ooze. The abdomen was closed tightly in layers, the peritoneum continuously, the fascia and skin interruptedly. A few through-and-through sutures down to the peritoneum had been placed. It was necessary to sponge continually while closing the belly wall. Everything bled. Every stitch hole was a new bleeding point. Anticipating a hematoma in the wound, several folded-pieces of gauze were placed over it and held snugly against it with tightly-placed adhesive straps. A large pad and firm binder completed the dressing. Although considerable blood was lost, the character of the pulse was always fair, never alarming.

To keep blood pressure down he was given no fluids during the night and two small doses of morphine to combat restlessness. The improvement was remarkable. The next morning (8 A.M.) the pulse was 68 and of good quality. Liquids without milk were started; 33 ounces were given up to midnight, he had two stools after an enema, and voided 18 ounces. At 2 P.M. he vomited 2 ounces of very dark brown liquid, very similar to the vomitus of peritonitis. Vomiting of similar character occurred at 4.30 P.M. 12 ounces, and the next day 4.45 A.M., 7 ounces, 12.30 P.M. 16 ounces, 5.30 P.M. not measured. The stools were all of old blood and occurred as follows: August 12, 4.30 and 5.00 A.M. after enema, 12.15 P.M. voluntary, 4.45 P.M. after enema, 6.45 P.M. voluntary, 9 P.M. voluntary; August 13, 3.30 A.M. after rectal tube. The temperature rose to 102 and pulse to 90 August 12, 4 P.M. Removal of the dressing revealed the incision elevated on a rounded prominence about 5 inches long and 2½ inches wide of purplish blue color and of firm consistency, evidently a massive hematoma. Extending from this to edges of the pad was a paler ecchymotic field. At the edges and just beyond the edges of the pad the ecchymosis was more intense. Extending from this field were strips of ecchymosis marking the edges of the adhesive straps. These extended well into the flanks. Beneath the straps there was no discoloration. The abdomen was soft, tympanitic, and peristalsis was evident by auscultation. Another examination of the urine was negative (slightly high color, clear, acid, no albumin, no sugar). The vomiting was always of the expulsive rather than the overflow type. For 24 hours he was denied anything by mouth, given 8 ounces of salt solution by rectum every 4 hours and morphine subcutaneously to keep quiet. Vomiting promptly ceased. For eighteen hours longer the rectal salt was continued with the addition of 3ii soda bicarbonate and 3 ounces of water with 3i of soda bicarbonate was given by mouth every 2 hours to combat the acidosis which might well occur after practically 3½ days of starvation. The soda and enemata were then omitted and soft solid diet immediately instituted. Convalescence was henceforth uneventful. The ecchymosis gradually worked down onto the penis, and became general over the abdomen, and then began to fade. From the discovery of the hematoma the wound was covered daily with alcohol dressings. The stitches were removed on the seventh day and the hematoma, then much reduced in size, evacuated through a director thrust. The wound stayed clean, oozed serum for several days, and closed. He was up and about the room on the twelfth day and discharged to his home on the fourteenth day. I saw him one month later (Sept. 20). He was looking and feeling well. The wound was strong and solid and the ecchymosis only very faintly evident. Seen again on October 12 in perfect health. Reported by telephone November 30 that he was in excellent condition.

Just before his discharge from the hospital I obtained the following history which I had failed to obtain before operating.

About three or four years ago had two or three teeth extracted. Bleeding continued for three days although he made several trips a day to the dentist who used various astringents and packings.

Two years ago he fell on the ice, striking his hand and splitting open the tip of one of his fingers about one-quarter inch. This bled for two days despite bandaging and stopped only after suturing.

Whenever he cuts himself shaving, he bleeds much more than most people, he thinks, and it may even keep him from attending his business.

In his family history I find no bleeders. Father, mother, two brothers, and one sister are living and well. One brother died at 22 of peritonitis following appendicitis. One brother died at 11 months of some spinal trouble.

Reviewing the events of the convalescence we do not find the picture of peritonitis or intestinal obstruction, certainly not of acute dilatation. Although the appearance of the vomitus was that of peritonitis it was always of expulsive character. Again the bowels moved spontaneously several times, gas was voluntarily passed and peristalsis was always evident by auscultation. Again the belly was comparatively soft. It was certainly not spastic, even about the wound. True, the temperature and pulse rose (temperature 102, pulse 90) but came down to 99 and 80 within 24 hours with general improvement. The expulsive character of the vomitus, the evidence of peristalsis by

auscultation and a few movements would not be inconsistent with obstruction. The number and bulk of the movements and lack of distention or tenseness of abdomen argue against this diagnosis. The evident explanation is as follows. Haemorrhage into bowels (appearance of stools and vomitus) and absorption of extravasated blood (rise of temperature and slight rise of pulse). At operation gentle traction of caecum to expose appendix caused haemorrhage into wall of caecum and probably from mucosa. Just before closing abdomen it was seen that there was no Lane's kink or Jackson's membrane. The pyloric end of the stomach, the duodenum and the gall bladder were felt and were apparently normal. This added manipulation, although usually not appreciably harmful, may have amounted to trauma in this case. Although there may have formed a hematoma in the region of the caecum, it seems unlikely that the rise of temperature was due to its infection, although readily possible in the bed of an appendix subject to only catarrhal inflammation; for the temperature dropped within 12 hours to 99 and rose only once again to 100.

I am led to place this case on record for two reasons.

First: As a reminder of this as a serious surgical complication and as a reminder of what I believe very common negligence, failure to make inquiry about bleeding in obtaining the history, especially in acute conditions.

Second: On account of the unusual symptom complex: rise of temperature and pulse, vomitus of the appearance of that of peritonitis but expulsive in character, belly without spasm and comparatively soft, stools of old blood and some copious and voluntary, and massive hematoma and ecchymosis of abdominal wall.

Medical Progress.

PROGRESS IN OPHTHALMOLOGY.

BY EDMUND W. CLAP, M.D., BOSTON.

TUBERCLE OF THE CHORIOID.

Marple[1] has reported on tubercle of the chorioid in tuberculous meningitis. From 1908 to 1911 there were 128 cases seen by him, the percentage showing tubercle of the chorioid not exceeding 5%. Carpenter and Stephenson had found it in 50% of their cases. For the first six months of 1912 thirteen cases of tuberculous meningitis in children entered the hospital and were examined under atropine and with an electric ophthalmoscope several times a day, and in every case tubercles of the chorioid were found sooner or later. Cases negative one day would show them the next day, and even a case without them at one examination would show one or more four hours later. He found small miliary tubercles, round or oval in shape, rarely irregular, of a greyish or grey-white color, usually without any pigment, with a moth-eaten edge, and varying in size from the breadth of a primary retinal vessel to a mass the size of the optic papilla or larger. In the greater number of cases they are limited to one eye and usually not far from the optic disc. Papillitis was found in four out of nine cases, and in three of these it was double. The author has never seen any exudation on Descemet's membrane in cases of tubercle of the chorioid.

VAN LINT'S OPERATION.

Van Lint[2] has proposed a method of avoiding prolapse of the iris after cataract extraction, which has been more or less tried by other operators this year. Before making the incision the conjunctiva is detached corresponding to the upper half of the corneal limbus and dissected from the sclerotic upwards 8 or 10 mm. A silk suture is inserted into this loosened conjunctiva on each side and the lower end of each suture passed through the conjunctiva below the horizontal meridian of the cornea, so that when they are tied after the extraction, the detached conjunctival flap glides in front of the corneal wound and covers about the upper fourth of the cornea. After the regular extraction the sutures are tied and the threads cut off close to the knots. The conjunctiva gradually retracts and from the second to the fifth day it has receded from the cornea. This procedure does not lead to any nutritive change in the cornea nor to astigmatism.

SENILE CHANGES IN THE EYE.

Attias[3] has investigated senile changes found in the human eye. Most authors, including Parsons, attest the presence of fat in the arcus senilis, but Fuchs called it a hyaline degeneration, and Leber traced calcium salts in the arcus. Attias with modern methods has shown that neither hyaline substance nor lime salts are a possible cause of the opacity, and he also proves that the substance reacts in all respects like fat. The author found fat granules even in the corneal epithelium and in Bowman's membrane. The middle strata of the cornea are as a rule the last to be affected by the deposition of fat. In some cases even the endothelium of Descemet's membrane had fat droplets in the protoplasm. Vollaro has found fat in the anterior part of the sclera in old eyes. Takaysu has confirmed this. The iris of aged persons may show partial or complete disappearance of the pigment layer at the pupillary margin and the tissue here and behind the sphincter may change into a hyaline mass. The fibres of the ciliary muscle are much thinner than in young subjects. The interfibrillar tissue is increased in amount and may

show a little fat. The ciliary processes show much increase in connective tissue and this may assume a hyaline aspect. In true gerontoxon lentis the capsule of the lens is normal, but the peripheral fibres have vacuoles in and around their nuclei and finally large spaces form and numerous fat drops. The eye muscles show a greater variation in size of fibres than in youth and the nuclei are often rounded and irregular. Fat is found here, too. In the nerves of the anterior segment of the eye degenerated fibres are more abundant in age than in youth.

MICRO-ORGANISM OF PARINAUD'S CONJUNCTIVITIS.

Verhoeff[4] has described a filamentous organism which he believes is the cause of Parinaud's conjunctivitis. The disease has been thought to be of animal origin and infectious, though no specific micro-organism has been hitherto found. Verhoeff and Derby have shown that the lesions in Parinaud's disease are histologically characteristic. While some recent observers have contended for the tubercular origin of this disease, their cases did not show the typical histology and were probably cases of conjunctival tuberculosis. The author has examined twelve cases histologically. Each was monocular and showed conjunctival granulations with areas of cell necrosis and enlargement of the preauricular lymphatic gland. The characteristic feature is the occurrence of focal areas infiltrated with endothelial phagocytes in various stages of necrosis. These cells are not close packed but discreet. There is a relatively small proportion of lymphoid and plasma cells in the areas but almost no pus cells. These areas, .3 to .5 mm. in diameter, are usually just beneath the epithelium. Surrounding the areas of cell necrosis the tissue is densely infiltrated with plasma cells. These twelve cases clinically as well, were cases of Parinaud's disease. By the method of fixation and staining detailed by him the author has demonstrated in the areas of cell necrosis in sections and also in tissue scrapings a filamentous organism occurring in masses. A high power shows these masses composed of intertwined delicate, faintly staining, singly contoured filaments. At almost regular intervals along the filament round dots occur which stain intensely by the modified Gram method. These are never exactly centered in the axis of the filament but project beyond its surface. The dots are seldom all of one size on one filament. In tissue scrapings filaments 30 micra in length may be seen. In eleven out of twelve consecutive cases these were found and in the one case the material was insufficient. The absence of any other demonstrable micro-organisms, their unusual character, their great abundance and the fact that they were so situated as to explain the lesions make it reasonable to regard them as the cause of the disease. Since no branching of the filaments could be made out they may be classed for the present as a leptothrix.

VISUAL SYMPTOMS OF SINUS DISEASE.

Fridenberg[5] calls attention to the visual symptoms of accessory sinus disease. Many symptoms of progressive sinusitis are ocular or orbital. We have nerve irritation in the form of reflexes or from direct action of toxic substances, mechanical pressure of hyperemia. So we get lachrymation, clonic or tonic spasm of the lids, fleeting edema, transient conjunctival or scleral injection, miosis, and occasionally spasm of accommodation. We may have transient rise of intraocular tension, with prodromata, or an actual attack, of acute glaucoma disappearing promptly under treatment of the sinus. Fleeting pain of eyeball, brow or temple, or even severe pain of a hemicranic type may belong here. Accommodative, conjunctival, muscular or retinal asthenopia is not infrequently found in cases of long standing accessory sinus disease. In scintillating scotoma the sinus should be examined. Of course mechanical involvement of nerve, muscle or eyeball is well known. The sinuses should always be considered in retrobulbar neuritis, especially posterior ethmoid or sphenoid disease and the optic nerve involvement may be not only mechanical but a toxic one analogous to tobacco or lead. In a large series of cases of disease of the posterior sinuses Van der Hoeve[6] noted an invariable enlargement of the blind spot.

ANAPHYLAXIS IN OPHTHALMOLOGY.

Szily[7] treats of anaphylaxis in ophthalmology and says that experiments have been made in two directions. One group busies itself with the question of the antigen working of various tissues of the eyeball in general anaphylaxis. Another question of greater practical importance is whether it is possible to bring the entire organism into a state of anaphylaxis from the eye. It is possible with heterologous proteid, but doubtful if it can be done from an animal's own tissues. So far, anaphylaxis has been suggested as playing a part in two eye diseases, sympathetic ophthalmia and interstitial keratitis. Elschnig[8] in a series of studies explains the nature of sympathetic ophthalmia by assuming that in severe lesions of the eyeball or in severe spontaneous inflammations of the uveal tract, uveal pigment in antigen form is absorbed and brings about a sensitization of the entire organism to this antigen. Then there needs only a pathological process with even slight pigment changes in the other eye, and a local anaphylactic reaction ensues. The sensitization from absorption of antigen in the first eye acts not only on the uvea of the second eye but also on the retained uvea of the first eye and keeps up a continuation of the disease, which spreads through the uvea under the same pathological picture as in the second eye. Von Hippel has offered several grave objections to this view, however, but it affords grounds for interesting speculations.

Peters[8] refers to the occasional disturbance of hearing in sympathetic ophthalmia and the possibility that the normally present pigment in the labyrinth plays a rôle therein. He shows that the deafness, in some of these cases at least, is not due to meningitis. Szily quotes Wessely's experiments on rabbits, of injecting one or two drops of sterilized inactivated horse or steer serum into the parenchyma of the cornea near the upper limbus. Two different effects followed; usually there was no reaction and the eye remained free from irritation, or after twelve to fourteen days there was a clouding of the deeper layers of the cornea above and deep vascularization. This reached its height in fourteen days and disappeared completely. If one injected foreign serum into the other eye at the time of this attack the characteristic inflammation appeared in this second eye, too. Arisawa and Szily found that if after fourteen days the first cornea be injected again whether the reaction had occurred or not, within twenty-four hours a marked infiltration of the deep layers over the whole cornea followed with signs of iritis. A third series of experiments began with the injection into one cornea and fourteen days later 4 c.c. of the same serum was given intravenously, at once the pupil of the injected eye contracted and remained so for some minutes, and then within twenty-four hours a typical picture of interstitial keratitis developed. Fourthly, an intravenous or subcutaneous injection of the serum followed in two weeks by an injection into one cornea gave in twenty-four hours the characteristic reaction. After a theoretical discussion of these results the author concludes that anaphylactic processes are concerned in parenchymatous keratitis and that this may throw some light on its occurrence after trauma. Analogous types of reaction have been observed in injection of serum, lens albumen or uveal tissue into the vitreous. The author thinks that the adjustment to or increased sensitiveness to chemical poisons differs so entirely in its nature that it should not be considered an example of anaphylaxis. Anaphylaxis or immunity is due only to antigen bodies and has a symptom complex independent of the sort of injected antigen and too hypersensitiveness to toxin or poison cannot be transferred to a normal animal through the blood serum as can anaphylaxis.

CHRONIC UVEITIS.

Fuchs[10] has made a very important study of chronic uveitis, the pathology of which he has been working on for a number of years. This covers the cases not due to syphilis, tuberculosis or sympathetic inflammation. Chronic uveitis includes iritis, iridocyclitis and iridochorioiditis and not cases of acute attacks with many recurrences, but only the cases that begin without or almost without evidence of external inflammation and so run on for years and only perhaps in the late stages, if at all, are associated with marked external inflammation. The patient notices his disease first by disturbance of vision. Objectively these cases are marked by deposits on the cornea, posterior synechiae, opacities of the vitreous and often by changes in the chorioid. It is conceivable that agencies noxious to the uveal tract may attack now one part and now another and an inflammation of the chorioid may slowly involve the iris and vice versa. If we wish to use a more definite name than uveitis we must decide on what clinical grounds we may make such a distinction. With visible changes in the iris tissue or posterior synechiae we are justified in speaking of iritis; with foci in the chorioid, of chorioiditis. In the numerous cases with no visible change in the iris, but with precipitates on the cornea and perhaps opacities in the vitreous, called serous iritis, the name iritis does not seem clinically justified. Despite the close connection of iris and ciliary body, involvement of one without the other may occur. The author has four cases, anatomically investigated, in which the ciliary body remained free during long continued inflammation of the iris and these were by no means light cases of iritis, one having seclusio pupillae. The question whether cyclitis occurs without iritis is not to be answered exactly, though with dense precipitates on the cornea the iris may show a very slight infiltration anatomically and none clinically. In the author's opinion chronic cases of unmixed cyclitis occur in the cases of heterochromia of the iris with precipitates in the lighter colored eye. These cases do show a peculiar atrophy of the iris tissue. The signs in the iris may be almost negligible with a very marked cyclitis, so Fuchs speaks clinically of chronic cyclitis in these cases with precipitates on the cornea and without perceptible changes in the iris. Precipitates are a frequent but not indispensable sign of chronic uveitis; they may be present at times and then absent in the course of a disease extending over years. They merely show the lymphocytic nature of the exudate and therefore the chronic course of the inflammation. The fresh inflammatory changes consist in cellular infiltration of the uvea with immigration of cells into the aqueous and into the anterior part of the vitreous. The older changes are proliferation of tissue, especially of the ciliary epithelium, adhesion of structures to each other and organization of membraneous exudates. The cells found in the aqueous and in the tissue of the uvea are mostly lymphocytes, as is the rule in chronic inflammatory processes. The kind of cells found in the exudate depends on the intensity of the inflammation and not on the nature of the exciting cause. Many of these lymphocytes later undergo a change, their nuclei become larger, longer and lose some chromatin, and the protoplasmic body larger. These large lymphocytes are relatively scarce in the tissues but form the majority in the anterior chamber exudate. In the tissue we meet also scattered polynuclear leucocytes, mast cells, eosinophiles

and plasma cells; the mast cells frequent, the eosinophiles rare. Occasionally plasma cells are found almost exclusively. The characteristic exudate is the precipitate on the cornea; anatomically this occurs in two forms which may be called pseudo-precipitates and true precipitates. In cases of the pseudo precipitate a continuous cell layer which is of unequal thickness covers the posterior surface of the cornea. In places there are gaps, in other places it is heaped up. The endothelium is frequently altered under the deposit. The pseudo-precipitate occurs most often in mild traumatic iritis. True precipitates occur in endogenous iritis. Of course exceptions are found. The true precipitates are fairly compact, well defined clusters of cells sometimes almost spherical, like little hills with steep sides, or flat on top and with a surface irregular from projection of cells. Between the separate precipitates Descemet's membrane is either entirely clear or here and there spotted with single cells or with a few grouped together. Under the true precipitates the endothelium is normal, perhaps under large and old precipitates there may be a gap. In the case of pseudo-precipitates the leucocytes in the aqueous singly become attached to the cornea; in true precipitates leucocytes free in the aqueous unite into balls and then, as a mass, become attached to the cornea. A further growth of these is not excluded or neighboring ones may coalesce. True precipitates mark spontaneous chronic iritis, pseudo-precipitates mark the more acute cases, especially those of traumatic origin. Clinically, strong magnification may show the pseudo-precipitates as small dots, not regularly round and not sharply outlined, and white or gray. True precipitates are small, but sometimes larger, fairly round, sharply outlined, often yellowish or brownish. They may remain months while the pseudo-precipitates are of short duration. Both kinds of precipitates are composed chiefly of lymphocytes which are larger than those forming the exudate in the iris. In precipitates of short duration the cells are clear, well stained, and granular, while in older ones the cells run together, stain poorly and are little, or not at all, granular. Occasionally isolated polynuclear cells are found and often fibrin. Pigment granules are common like the chromatophores of the uvea, sometimes in large spheres giving a black or brown color to the precipitates. The precipitates are distributed by centrifugal force over a triangular area, or chance may govern their arrangement or their situation may correspond to an inflammatory focus in the cornea. Resolution of the precipitates begins at the base and they disappear in most cases without leaving a trace or they may become darker with time and remain permanently. Rarely the precipitate organizes to connective tissue. The question of the origin of the leucocytes which form the precipitates is yet undecided, some authors favor origin from the iris, others from the iris and anterior part of the ciliary body together. Both these regions and the posterior part of the ciliary body as well can give rise to precipitates. Deposits occur on the iris and on the lens capsule in the pupillary space and may be seen on the tissue of the iris, when they are large enough. Fuchs thinks the old view right that precipitates on the iris and in the pupil occur when the patient lies on his back, as during sleep. True precipitates do occur on the retina.

From a clinical standpoint we may distinguish three groups of endogenous chronic uveitis: (1) Light cases with precipitates without posterior synechiae; a chronic cyclitis lasting years without much change. The first serious complication aside from opacities in the vitreous may be increase of tension. In this group may be placed the cases occurring in heterochromia iridis. (2) Cases of medium intensity with posterior synechiae as well as precipitates. In time seclusio pupillae may result. (3) Severe cases ending in atrophy of the eyeball. Of course these groups grade into each other. Now anatomically we may make five groups: (1) Cases with changes in the iris (and often in the chorioid) without involvement of the ciliary body. In the iris, light infiltration and later atrophy of the tissue, adhesions of the pupillary edge to the capsule and a membrane in the pupil only or also on the anterior surface of the iris. (2) Cases with changes in the iris and also in the ciliary body. (3) Cases with membranes in the interior of the eye on the ciliary body and often also on the chorioid. Total separation of the retina and atrophy of the eyeball often follows. (4) Cases with changes resembling those of sympathetic ophthalmia. (5) Cases with great infiltration of the uvea and also of the retina with necrosis of this organ. As to etiology, groups 1 and 2 may be attributed to a slight but continuous irritation working on the surface, probably from the presence of an irritating agent in the aqueous. Group 3 has organized membranes which are like those in exogenous uveitis after perforation. Some of our cases may have such an origin, though hardly the bilateral ones. Some may be of metastatic origin. Group 4 and 5 suggest a parasite in the tissues perhaps coming from the blood. The iridocyclitis after separation of the retina is of endogenous type and not caused by microorganisms but may be ascribed to the irritative agency of the subretinal fluid. Fuchs had 15 such eyes to study. An early case showed very slight infiltration of iris and ciliary body with lymphocytes and an adhesion of pupillary edge to anterior capsule. The older cases showed in one half of them, seclusio pupillae and pushing forward of the iris, and the half without iris bombé showed either (1) incomplete adhesion of pupillary edge to capsule or (2) a complete fusion of surface of iris to the capsule or (3) subluxation of lens or (4) increased tension. If the separation of the retina is not primary but secondary to an endophthalmitis there are characteristic membranes at the ciliary body and surface adhesion

of iris to lens and so no iris bombé. The inflammation often limits itself to the pupillary edge forming an annular synechia while on the posterior surface of the iris and the ciliary body there is no exudate. A membrane forms in the pupil and may extend on the anterior surface and also a little posteriorly on the capsule so as to take the pupillary edge between its two layers. New vessels may form in the anterior layer and if the pupillary edge is not entirely bound down, contraction may cause an ectropion of the pigment layer and sphincter. The stroma of the iris may be free from infiltration and show an atrophy of various grades or slight infiltration may occur like that in chronic uveitis. Two thirds of the cases show changes in the ciliary body either a light diffuse infiltration throughout or the pars plana alone may show the severer types. The chorioid even back to the papilla may be involved and very large "Drusen" of the lamina vitrea are found.

HYPOPHYSIS DISEASE.

Emory Hill's[11] paper should be read in full. His third section on the eye symptoms of hypophysis disease is abstracted as follows. Enlargement of the hypophysis, from its position, may produce a great variety of eye symptoms. Exophthalmos and other pressure effects are frequently absent and their presence does not aid in distinguishing between the acromegalic cases and those representing a hypofunctioning gland. Palsies of ocular muscles in fact are more frequent in the latter type. Authors give temporal hemianopsia in from 38% to 46% indicating that temporal hemianopsia is not essential to the diagnosis and we may recognize the disease long before this symptom is present. Cushing says: "The primary defect usually involves the color boundaries alone in one upper temporal quadrant and the temporal field is gradually involved. The color fields are involved first and the form fields later. The macula region, spared for a long time, is implicated first in its temporal half and then wholly. Rarely are the two eyes affected in an equal degree. Homonymous hemianopsia occurs in a number of cases. A great variety of contractions of the visual fields may be found. Color interlacing and daily variations in the fields are found frequently." Amblyopia and amaurosis are late findings. Primary optic atrophy is more frequent than neuritis and secondary atrophy. When intracranial pressure is a late and rapid development choked disc may be imposed upon a primary atrophy. Scotomata, contrary to the older view, are frequent and important and may represent the beginning of larger defects which will become hemianopsias.

BLUE SCLEROTICS AND FRAGILITAS OSSIUM.

Within the last three years the inherited nature of this congenital peculiarity has been proved. The patients have the sclera of a bluish tinge described by Stephenson as leaden and by others as pale azure blue usually uniform in color from cornea back to equator, though the ciliary region may be deeper in tint. Von Ammon first described it in 1841 and in 1903 Buchanan examined a case anatomically finding the sclerotic one third of its normal thickness. Peters[12] in 1908 first mentioned its hereditary transmission. The patient, his father, his uncle, one cousin, an aunt and a grand parent were said or known to have had blue eyes of this sort. Four generations were affected. Four of these cases had a typical embryontoxon, which may accompany many congenital misformations. Abnormal transparency or abnormal thinness of the sclera may account for these cases and Peters inclines to the latter view. There was no sign of stretching, either buphthalmos or even myopia in his cases. Stephenson[13] in 1910 reported a case with a small embryontoxon towards the upper margin of each cornea and a congenital crescent at the lower margin of each optic disc. He found 32 individuals in four generations and 21 had eyes similar in appearance to the patient, 7 were males and 14 females. Harmon[14]further investigated this family, covering 55 individuals and 5 generations, of whom 30 had this congenital peculiarity. The hair varied from dark to yellow and the irides varied equally. Most of them had astigmatism of considerable amount and Fuchs coloboma of the lower edge of the disc. Harmon ascribed the defect to unusual thinness of the sclera. There were 12 males and 18 females. Inheritance was through females always. Eddowes was apparently the first to note that persons with blue sclerotics had frequent fractures of the bones. He thought the condition of the sclera indicated a want of quantity or quality in the fibrous tissue of the body. Burrows in 13 cases of blue sclerotics found 9 who suffered from fractures from trivial violence, and of 16 persons in the same family with normal sclera none had had fractures. Adair Dighton[15] in 1912 reported 9 cases in four generations and five of them were victims of fractures often repeated from trivial causes. Peters[16] again in 1913 reinvestigating his family found the father and two sons had had seven fractures of the long bones. Conlon[17] reports a family where the blue sclerotics appeared in five generations. He saw personally a father and five children all affected and all with embryontoxon, and three children had a liability to fracture from slight violence, while the history showed fractures common in the family. No one of the six seen had Fuchs coloboma. Conlon believes the explanation of the color is abnormal transparency and not abnormal thinness of the sclera and that the case examined histologically by Buchanan was not a typical one. Conlon had x-rays of fibula and tibula taken showing both bones with a much enlarged medullary canal and a thin cortex. The shaft of the fibula was enlarged irregularly

and the cortex was almost entirely wanting at the enlarged places. The wrist bones showed a similar condition. All the bones showed atrophy and a lack of density.

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Reports of Societies.

THE AMERICAN NEUROLOGICAL ASSOCIATION.

THIRTY-NINTH ANNUAL MEETING, HELD AT WASHINGTON, D.C.

MAY 5—7, 1913.

THE PRESIDENT, DR. PEARCE BAILEY, NEW YORK, IN THE CHAIR.

(*Concluded from page 62.*)

THE RÔLE WHICH HEREDITY PLAYS IN INDUCING EPILEPSY IN CHILDREN SUFFERING FROM INFANTILE PALSY.

DR. L. PIERCE CLARK, New York, and DR. EDWARD A. SHARP, Buffalo, N. Y.: In a comparative analysis of some 886 cases of epilepsy, divided equally between those suffering from the idiopathic disease and hemiplegic epilepsy, we found that the heredity charts of the two classes were practically identical quantitatively and qualitatively. We, therefore, deduced the conclusions that the prognosis in any cerebral hemiplegic child predisposed to epilepsy because of his palsy was enormously increased by the presence of a hereditary neuropathic constitution in a given case, and that the palsy *per se* played a secondary rôle and a much less important one than heretofore supposed.

DR. E. E. SOUTHARD, Boston: At the Psychopathic Hospital, the chief of the out-patient department, Dr. Lucas, has been working upon heredity in epilepsy, and an interesting confirmation of Dr. Clark's conclusions are in process of being obtained. Our investigator has spent some eight months upon the heredity in these cases, and had unfortunately been unable to establish what the speaker and his associates thought she might establish, namely, the difference in the heredity features in the organic and inorganic cases. I would judge that an intensive work upon this small number of cases would entirely confirm Dr. Clark's results.

THE FEEBLE-MINDED IN MASSACHUSETTS OUTSIDE OF INSTITUTIONS.

DR. WILLIAM NOYES, Boston: This inquiry was undertaken under the direction of the State Board of Insanity, which has the duty of recommending to the Legislature the provision that should be made each year for the institutional care of the feeble-minded. Heretofore no data have existed that would give an adequate idea of the extent of the provision needed because of the varying estimates of the number requiring institutional care. All the available sources of information were utilized, and the data received were entered on cards, one for each individual. The cards, finally brought together in alphabetical order to prevent duplication, showed a listing of 5,007 individuals, 2,640 males and 2,367 females, who were considered by one or more persons as being feeble-minded. These totals do not include returns from the schools of the five large cities of Boston, Cambridge, Lowell, Fall River and Salem. It is estimated that there are ot least 628 institution cases in the schools of Boston. It is easily seen, therefore, that the institution cases in the schools of the four other cities would increase the totals in a very marked degree. On the other hand, it must not be assumed that the 5,007 individuals listed in the census are by any means all institution cases. Defective delinquents have been rejected when known to be such. For the purpose of comparison with the state census of 1905 a more intensive study of a given section, including twenty-one towns, was made. One hundred and five feeble-minded individuals were found, while the state census gave but 37, a very marked difference. If the same proportion held throughout the state, the total number in the community would be 7,861. A committee has prepared tables estimating the cost to the state of three feeble-minded families,—the W family and two branches of the B family. The tables are made on the estimated cost of caring for a feeble-minded child by the State Board of Charity at $180 a year until the average age of thirty-three. The totals of these feeble-minded children are as follows: 9 members of the W family will cost the state $30,705; 7 members of the B-I family will cost the state $21,470; 3 members of the B-II family will cost the state $12,600.

DISCUSSION.

DR. L. PIERCE CLARK, New York: I consider the census which Dr. Noyes has made highly important from many points of view. I am rather surprised to find from Dr. Noyes that the number of feeble-minded in Massachusetts is relatively small. In New York City alone there are over 7,000 uncared-for in the schools, even at a conservative estimate, without a definite census being made. In New York, the profession had doubts as to whether the special classes for instruction could serve other than as a makeshift until segregation in colonies could be undertaken. It was the best thing that offered itself.

DR. NOYES: Segregation with us means merely committing the subjects to the schools at Waverly and Wrentham, state institutions. Of 87 women under the charge of the state board of adult poor, 68 were known to have had children—92 illegitimate and 17 legitimate; making a total of 109 children born by 68 feeble-minded and borderline mothers. The statistics did not, as a rule, include the borderline cases because for various reasons authorities would not report a case unless pretty well marked. I believe that all states having to deal with this problem will have to come to this, that there shall be a definite census made of them

and of those the profession would look on as more dangerous, and that the state shall assume charge of all these and say they cannot have their liberty.

DR. DANA, New York: The latest estimate of New York state has something about 5,000 of this class; and so it seems to me the estimates mentioned by Dr. Noyes rather confirms the estimates made in New York.

DR. NOYES. I was surprised and gratified when the inquiry into these special towns came out that it practically agreed with what is generally put out, about 1 in 500. I obtained the information myself in the summer time, interviewing by telephone and verbally all the physicians and the superintendents and supervisors of the poor.

LESIONS OF THE HYPOPHYSIS FROM THE VIEWPOINT OF THE SURGEON.

DR. CHARLES H. FRAZIER, Philadelphia: I present the results of four cases of hypophyseal disease in which the hypophysis had been approached by his transfrontal intracranial method. There were no operative fatalities. I would call attention to the advantages of this over the transphenoidal method, as indicated by my own experience and from a review of 65 operations by various surgeons who have used the extracranial approach, and to the difficulty in determining before the operation what the nature or size of the lesion is. The same clinical picture is present in all sorts of hypophyseal lesions, including hyperplasia, benign and malignant growths. Any one of these lesions may lead to evidences of hypo- or hyperpituitarism or to neither. The only evidence of pituitary disorder in many cases is revealed in the visual disturbances and the signs of intracranial tension without the least suggestion of the perversion of the metabolic processes. Much confusion that has arisen in the minds of the experimentalist as to how vital the hypophysis is for the maintenance of life, and I am inclined to accept the opinion of those who have found in animals that complete removal is not incompatible with life. I would refer to the further confusion in the minds of the pathologists as to the classification of pituitary tumors, and show how comparatively benignant is the life history of certain malignant lesions, so that in the presence of malignancy the beneficial effects of operation would extend over a number of years. I review the indications for surgical therapy, the beneficial results of which are seen in the majority of instances in the relief of the visual disturbances, headache, psychic disorders, and to a less extent of the symptoms of acromegaly and dystrophy. I find it of advantage on my own cases to combine glandular feeding with surgical intervention, and I do not believe that operation should be resorted to, except in the presence of impending blindness, until glandular feeding has been given a trial. I am fully convinced that in the future the transfrontal method of approach would be adopted by the general surgeon, and, if the transphenoidal method is used at all, it should be practised only by the specialist trained in the technic of intranasal procedures. Palliative procedures, such as temporal or sella decompression are only of questionable value and only transitory in their influence upon the symptoms.

DISCUSSION.

DR. CRAMER: In 1911 there was brought to me a patient who, in 1873, had become completely blind. This, of course, was before the days of pituitary agitation or much pituitary knowledge. In 1911 she appeared with the pituitary syndrome and died with inanition in the latter part of that year. Here was a patient who lived with pituitary tumor, blind, from 1873 until 1911. If operation cannot influence or retard the development of compression symptoms, it makes no difference how safe the operation may be, whereas, if the intracranial route will do this to a greater extent because, as I have pointed out, the tumor most frequently grows upward, that operation is the one that should be developed.

DR. ALFRED REGINALD ALLEN, Philadelphia: In the past year Dr. Frazier has sent me four specimens of scrapings or excisions from a part of the pituitary. The point of interest is the discrepancy of opinion of various men as to what these growths are. I have been greatly interested in the peculiarity of the process simply from a morphological standpoint, and whereas, the profession has a very complete idea, from the histological and histopathological aspect, of chronic interstitial nephritis and many other things of that kind, yet when we come to the pituitary our knowledge is very slight. I believe that one reason for knowing so little is that the surgeon digs out a piece in the operating room and sets it aside, and the piece remains until after the operation, and in the meantime dries out and reaches the pathologist's hands in bad condition for study. If surgeons would care better for these tissues we would soon know a great deal more about the histo-pathology of neoplasms of the pituitary body.

DR. HERMAN HOPPE, Cincinnati: I have in my possession a brain tumor that was obtained before the days of the x-ray, and also before the days of much knowledge of hypophyses. It is a hard fibroma that is probably two inches in diameter. It never could have been removed by the transnasal route. Today this case would be diagnosed at once, and that tumor could have been removed very easily by the transfrontal route. This man's life would have been saved, absolutely, providing the surgical technic had been successful.

DR. CHARLES H. FRAZIER, Philadelphia: In my paper I tried merely to state the problem from the standpoint of the pathological features with which surgeons had to deal in order to open the way to some conclusion as to the best method of dealing with this problem. I tried to be conservative, at least in my estimate of the usefulness and the limitations of surgery. The point I wished to emphasize, however, was that these so-called malignant lesions do run a very benign course, and when these tumors are large in proportion, they grow up towards the hemispheres, not down, so that they were more readily approached from above, also that in most of the operations done through the endonasal methods, there had been a very incomplete removal of what in many instances was a very large tumor, and, lastly, that, in the hands of most surgeons discussing general surgical procedure, the intracranial method would prove to be the safer of the two. When one recalls to mind the anatomical feature of these two operations, it will be observed that one can draw a line from the tip of the nose, or one appproximately from the upper lip back through the spenoid process to the sella turcica, which line would be longer than a similar line through the supraorbital ridge to the sella turcica. If, in the early stages of the operation, one punctures the dura over the frontal lobe, so that during

the subsequent stages the cerebrospinal fluid is allowed to escape as freely as it may in order to afford an opportunity for the displacement of the hemispheres from that portion; if one displaces the frontal lobe upwards, with the patient's head in the so-called Rose position; if then, one has a suitable headlight, which in some instances is necessary and in some not, according to the character of the day, a very correct view can be had down to the optic foramen, or down to the point where the optic nerve passed through the optic foramen. It is not necessary to remove the rim of the foramen. When you are at the apex of the orbit you are really within a trifling distance of the pituitary body; and it remains then only to make a transverse or horizontal incision in the dura about a quarter of an inch above the floor of the base of the skull in order to avoid the sinus, it remains only to make this horizontal incision in the dura to expose the contents of the sella turcica. As thus described, this sounds like a very simple procedure, which it is. In most instances it is simpler than the exposure and removal of the Gasserian ganglion; this is not because I am partial to the operation, but I think there are other surgeons who have tried the method who will confirm what I have said. I had a conversation last night with Dr. Elsberg of New York, who has done the operation only once, and he had been really surprised at the comparative simplicity of it and at the facility with which he reached the sella turcica and exposed a large round growth, and subsequently removed it with most striking results. The matter is still subject to question and we cannot come to any definite conclusion on one side or the other, but I still feel that eventually we will find that, if the pituitary body be approached, and, if the lesions of the pituitary prove to be amenable to surgical therapy, the transfrontal approach will be the more desirable of the two.

OFFICERS FOR 1913-1914.

Dr. Henry Hun, Albany, President.
Dr. Alfred Reginald Allen, Philadelphia, Secretary-Treasurer.

NEW ENGLAND PEDIATRIC SOCIETY.

A combined meeting of the Pediatric Section of the New York Academy of Medicine, the New York State Society, the New Jersey Pediatric Society, the Philadelphia Pediatric Society and the New England Pediatric Society was held in Boston, November 8, 1913. The morning was spent in visiting the various hospitals. Dinner was served at the University Club at 6.30 P.M. At 8.15 P.M. the combined societies met in John Ware Hall, Boston Medical Library. The following papers were read, and discussed:

1. On the Bacteriological Diagnosis and Treatment of Alimentary Disease in the Infant and Child, by Dr. Ralph Vincent, London.
2. Investigations in Vulvovaginitis by means of the Female Urethroscope, by Dr. John F. Sinclair, Philadelphia.
3. Active Immunisation in Diphtheria by Toxin-antitoxin, by Dr. William H. Park, New York.
4. The Position of the Stomach in Children, by Dr. James Warren Sever, Boston.

JAMES S. STONE, M.D., CHAIRMAN.
FRITZ B. TALBOT, M.D., SECRETARY.

DR. RALPH VINCENT of London, England read a paper

ON THE BACTERIOLOGICAL DIAGNOSIS AND TREATMENT OF ALIMENTARY DISEASE IN THE INFANT AND CHILD,

and demonstrated it by lantern slides.

Abstract: The organs are grouped according to the conditions determining their growth in their action upon milk. (1) Bacteria producing lactic acid but not producing gas. (2) Bacteria producing lactic acid, carbon dioxide and alcohol. (3) Bacteria growing in "pasteurized" milk. (4) Bacteria growing in milk after it has been raised to 100° C. The colon organisms were capable of acting proteolytically in certain conditions and when these conditions were present alimentary toxaemia was established. He had recently devised a method of differential staining by means of which the colon organisms could be recognized by direct microscopical examination of the stained film, and this had proved to be of great value in regard to clinical diagnosis.

DISCUSSION.

DR. C. H. DUNN: I have always been particularly interested in the bacteriological side of these diarrheal conditions. I think that Dr. Vincent's paper touches the main point at issue in the present stage of advance in our knowledge of the gastroenteric disorders. There have been two groups of men working upon this condition, one group entirely along chemical lines, and they come out with the results of fat intolerance, carbohydrate intolerance, proteid intolerance and so forth, and I think that this group has been rather too much inclined to neglect the role of these bacteria. On the other hand, the other group of men have been working along bacteriologic lines and they have been very much inclined to neglect the chemical aspects. I think what we need now is to bring the two separate lines on which the investigations have been carried out into closer harmony. I have always been convinced that an important part was played by the conditions of over acid fermentation on the one hand and putrefaction of the proteids on the other in a great many of these cases. It seems as if as the result of the work of Kendall and others we had gotten to the point where we were all ready for our treatment and had an idea of what bacteriologic processes were going on in the intestine if only we could recognize them clinically. We were ready to treat them with the proper diet or by introducing the proper organism, and we have known that in some conditions a great many cases can be very effectively treated by introducing acid-producing organisms, but what we have lacked most is some laboratory method for distinguishing one type from the other. Heretofore we have not been able to tell which organism was present and therefore we have not been able to tell which treatment was best to apply. If this work of Dr. Vincent is going to give us a rapid and systematic laboratory method of telling us whether we have to do with colon infection, conditions of putrefaction or overgrowth of the acid organisms, I think it will be exactly what we have been waiting for and what we need.

DR. JOHN F. SINCLAIR, Philadelphia, read a paper on

INVESTIGATIONS IN VULVOVAGINITIS BY MEANS OF THE FEMALE URETHROSCOPE.

Abstract: The purpose of the paper was to suggest improved methods of prophylaxis.—The study was based on 83 cases admitted to the Babies' Hospital of Philadelphia, which has been endoscopically examined. All were under three years of age. Both vulvar and vaginal smears were taken and examined bacteriologically. Careful notes were made of the conditions of the cervix and vaginal mucosa upon endoscopic examination.—The complement fixation test was employed in ten cases and was positive in fifty per cent. Of the 83 cases examined 16, or 19%, were found to be infected with the gonococcus, at the time of admission to the hospital, or to present highly suspicious evidences of such infection. Seven cases, negative upon admission subsequently developed vaginitis of specific origin. The early recognition of the infectious agent in latent cases is of immense importance in instituting proper prophylactic measures. Over twenty-one per cent. of the total number of cases examined would have escaped detection without the use of the endoscope. Only 30% of the babies in the "positive" and "suspicious" groups showed any visible signs of a discharge upon admission.

He concludes that to be effective prophylaxis must begin with a campaign of education in the homes where infants are born and raised, as well as in all manner of institutions which have to do with the various phases of child welfare. Day nurseries, infant and orphan asylums, hospitals, shelters, public bath houses, recreation centers and even our school houses are prolific sources of infection, and will continue to be, until adequate medical supervision is exercised and individual cases are isolated until free from the specific organism.

In day nurseries, shelters, foster homes of every description, and in hospitals, every child should be carefully examined upon admission for clinical and bacteriological evidences of gonococcal infection and promptly removed or isolated if the findings are positive. Proper isolation in institutions demands employment of special nurses, who shall have no other duties, or in any way come in contact with babies or children in other departments of the institution. The lay helpers should be free from gonorrheal infection and this should be determined by bacteriological examinations and by the complement fixation test. Systematic examinations of all inmates of such institutions should be made with thoroughness at convenient intervals that latent cases may be early detected and isolated before becoming new centers of infection.

In the case of public bath houses, recreation centers, and schools, efficient supervision should be exercised by properly qualified trained nurses so that every suspicious case may be promptly excluded and referred to a physician for treatment.

Boards of health should be empowered by law to make gonorrheal infections reportable and to exercise their authority along lines similar to those which they now employ in dealing with tuberculosis.

Medical attendants, especially gynecologists, and genito-urinary surgeons, should inform their patients clearly as to the nature of the disease and the danger of communicating it to innocent babes and children, at the same time giving minute instructions how they may safe-guard those about them.

Special clinics for the treatment of gonorrheal vulvovaginitis should be established in all the large cities as has already been done in Boston and New York.

DISCUSSION.

DR. RICHARD M. SMITH: Regarding the cases of which Dr. Sinclair speaks, it seems to me that one point of very great importance is the value of the complement fixation test. We have been in the habit of not considering a case, one of gonorrheal vaginitis, until we have had a positive smear, positive culture and positive fixation test. Some children have been kept from institutions or from school because of a vaginal discharge which on investigation proved to be not gonorrheal. It is very much worth while to be sure of the diagnosis. It also seems to me that a fixation test ought to be made in every case before it is called cured.

DR. WILLIAM H. BECK, New York, read a paper on

ACTIVE IMMUNIZATION IN DIPHTHERIA BY TOXIN-ANTITOXIN.

Abstract: Active immunization in 50 children has been carried out. Two mixtures were employed of toxin and antitoxin. In one, 66% of the amount of toxin required to neutralize 1 unit of antitoxin was used, in the other 50%. The children receiving the 50% addition of toxin produced very little antitoxin. Those receiving 66% produced in four fifths of the cases antitoxin varying from 1 to 6 units per cubic centimeter. The greatest amount was present at about the 10th or 12th day after the injection. The injections were given either as a single dose or divided in two doses at a week's interval. Absolutely no symptoms except in a few a slight local tenderness and a possible rise of temperature occurred. One fifth of the children developed no antitoxin and two of these developed diphtheria. This is a matter of great importance because not only does active immunization require several days to be established, but it fails in a certain percentage of the individuals. Immunization in hospitals or in institutions in which an epidemic of disease has occurred will probably be better treated by passive immunization with antitoxin. In the places in which on account of carriers the population is constantly apt to be infected, active immunization may be of value, much the same way as typhoid immunization is now practiced, except that in the cases of diphtheria it is to be applied to infants and young children rather than adults. Horses injected with these mixtures showed immunization on the third day and the greatest amount on about the seventh day.

DISCUSSION.

DR. EDWIN H. PLACE: It has been with great interest that I have heard Dr. Park's excellent paper, especially as the use of toxin-antitoxin mixtures were first suggested by Professor Theobald Smith. There has been, however, so much fear of unfavorable effects that no one has used them here—unquestionably an unfounded fear. It has been apparent to all working with diphtheria that great as has been the reduction of mortality, the morbidity has shown no clear or continued diminution since antitoxin came into use. The Boston curve as well as the New York figures fail to show that any real control over the prevalence of the disease has been secured and we are still dependent largely on

isolation. With the difficulty of recognition of the carriers at large and with the absence of any curative treatment for carriers, isolation has not gone to the desired extent as a preventative. These efforts to secure active immunization are therefore of much interest and importance. Dr. Meader last summer has studied at the South Department the effect of bacterial vaccines. But although there was a definite and usually marked increase in the bactericidal substance in the blood following vaccine administration, the disappearance of the diphtheria bacilli had no definite relation to this increase. It is unfortunate that more successful results were not obtained with the toxin-antitoxin mixture but there is hope that the future may know through these studies some great improvement in the control of diphtheria.

DR. WILLIAM H. PARK: I think as Dr. Place has mentioned, that possibly with the use of the bacterial protoplasm in addition to the toxin we may obtain not only antitoxin immunity but also bactericidal. Although it is somewhat discouraging to find that one-quarter of those injected are not immunized, yet three-quarters is really a pretty large proportion, and that possibly this will be increased with the use and development of the bactericidal immunization. It is at least sufficiently encouraging to attempt a further investigation. It seems absolutely safe I hope in connection with a number of colleagues to test the value of active immunization in a great many cases.

DR. JAMES WARREN SEVER read a paper on

THE POSITION OF THE STOMACH IN CHILDREN.

Abstract: The data from which the conclusions have been drawn in this paper have been gathered from a careful study of over eighty children. X-ray pictures were made of the children's stomachs in the erect position. In practically all instances the lower border of the stomach was found at or below the iliac crests. The shape of the stomach was usually of the sink drain type. The so-called ideal "cow's horn" stomach was rare. The organs were as a rule rather large. All were lower than what heretofore has been supposed to be the normal position, namely, the second lumbar vertebra. It was the inevitable conclusion from a study of these cases that a low stomach is not abnormal, but is probably where it belongs, and that there is rarely a pathological ptosis.

DISCUSSION.

DR. MAYNARD LADD: Almost all of my own investigations have been in infants under nine months of age, and have been done more with reference to determining the gastric motility than the position of the stomach, but I am certain that in the infants, at least up to that age, the stomach is a great deal higher than in the older children that Dr. Sever speaks of. The stomach is high in the young child. I do not recall now in my particular series any stomach the lower border of which reached down to the crests of the ilia, or anywhere near to that level.

DR. JACOBI: The position and shape of the stomach of the baby under nine months changes very rapidly from the vertical; at the end of one month it begins to be oblique, and at that time we frequently find it in front of the tenth dorsal. A careful observer has to take this into consideration also. In the very young baby the position of the stomach changes very often according to the food which it takes. Babies who are breast-fed have a different stomach from those who are artificially fed, and in artificially-fed babies the stomach will sink down even before this time. I think the lecturer will add to his data if he will take up the stomach of very small babies for the next year or two. The first demonstrations of the localization of the stomach are quite old, I have had to refer to it some time ago, and looked up some literature. The first paper I found on it was in *Unfeland's Journal* of 1825. There is a picture which shows the vertical position of the stomach at birth and very soon after. At the age of one month it begins to be oblique, and in a very few months more it changes considerably. I shall come again in a year or two and will listen to the reader's additional data.

DR. ARTHUR H. KIMPTON: I have had occasion recently to do autopsies on two very young children, one of three weeks, and one of four days old. The first one was a child normally born and gained weight at the rate of eight ounces a week for the first two weeks, but the first day of the third week it began to vomit and then vomited either five minutes or half an hour after taking food, not always immediately after. It was an undoubted case of pyloric stenosis. I saw the baby late in the evening and made arrangements to operate the next day as there was a palpable tumor, and the case was definitely one of pyloric stenosis, apparently not spasmodic. That child suddenly died before operation and at autopsy the stomach was in an oblique position high in the abdomen, higher than the text books tell us, and the photograph which I have to show you is practically the size of that baby's stomach as it came out. You will see the pyloric tumor, which is colored, and it is rather interesting to me because I had never seen a picture of a true pyloric stenosis. Dr. Whitney has the stomach as a specimen. Dr. Whitney said that the tumor looked to him like new growth than hyperplasia.

The other case was that of an infant four days old that began to vomit on second day, and was supposed to have had an artificial anus. You could pass your finger high into the rectum and palpate it with the other finger bi-manually. There was no pyloric stenosis. I saw the child after it had been vomiting for some time, and there was nothing to do but make an artificial anus. There was no large intestine to be found to make an artificial anus with, so I made one from the lowest loop I could get and made no attempt to find out where the obstruction was. The child died and an autopsy was done and the intestine examined from beginning to end, and that stomach, too, was extremely high, in an oblique position. That baby had to all intents and purposes no large intestine. It was about as large as a very small pencil and nothing in it, except putty-like material. The cause of the obstruction was about one inch from the ileo-cecal valve, due to bands coming up from the side of the pelvis catching it in a half-hitch and twisting it so that you had a mechanical obstruction. No meconium had ever gone into that large intestine. The baby passed marked quantities of this inspissated material, and it was white putty-like material, which came out in strings. We do not see enough of these cases to learn much from them. If I should see another case, I should look for an obstruction somewhere close to the cecum rather than high in the large intestine.

Book Reviews.

The Administrative Control of Smallpox. How to Prevent or Stop an Outbreak. By W. McC. WANKLYN, B.A. (Cantab.), M.R.C.S., L.R.C.P., D.P.H., Fellow of the society of Medical Officers of Health, and formerly referee in the diagnosis of smallpox and medical superintendent of the river ambulance service (smallpox) of the Metropolitan Asylums Board, London. 8vo., pp. 83. New York, Bombay and Calcutta: Longmans, Green and Company, 39 Paternoster Row, London. 1913.

Into this astonishingly brief book (hardly an hour's reading) Dr. Wanklyn compresses twenty-one years' experience in the handling and prevention of smallpox epidemics. The suggestions are concise, sound and practical, the illustrations interesting and illuminating. The book is aimed primarily at those who are or aspire to be public health officers, and the references are to British conditions, especially with regard to vaccination and to public health organization. The book will, however, find valuable application in any community which is only partly protected by vaccination and yet is constantly exposed to a dropping fire of infection from all parts of the world. Such communities are the rule in America as well as in England, a fact we are apt to forget, for where smallpox is not prevalent, nothing seems so remote. To our mind, the author places somewhat too much importance on the danger of importing smallpox "in clothes, rags and other raw material for manufacture," and draws an unwarranted distinction between the infectivity and the virulence of smallpox strains. The book affords valuable sidelights on the importance of vaccination, and is eminently sane and usable by anybody anywhere.

Taschenbuch der Magen and Darmkrankheiten. By DR. WALTER WOLFF. Berlin and Vienna: Urban and Schwarzenberg. 1912.

Dr. Wolff has put into a little book of 160 pages the more common and useful diagnostic and therapeutic procedures that are carried out in the Augusta Hospital in Berlin. The book bears the official approval of Ewald in the form of an introduction. It is a simple, clear, well written book, especially designed for students and practitioners. The book is sound and sane throughout. The discussion of the section on gastric diseases is complete. The discussion of intestinal diseases occupies less than twenty pages and is superficial and cursory. As a small handbook on diseases of the stomach the book can be heartily recommended.

A Text-Book on Gonorrhea and Its Complications. By DR. GEORGES LUYS, late assistant to the Urological Clinique, Hospital Lariboisière, Paris; prizeman of the Faculté de Médecine, Paris. Translated and edited by ARTHUR FOERSTER, M.R.C.S., L.R.C.P. (Lond.), late resident medical officer, London Lock Hospital. With 200 illustrations and three colored plates. New York: William Wood and Company. 1913.

This book is what its name indicates. It is a real text-book, and it is the most satisfactory and up-to-date record of this disease, as it exists in man, woman and child, which we have seen. The book is complete without being ponderous, is well written, well printed on good paper, and is exceedingly well illustrated. When compared with the many trivial and inefficient books, so frequently met with in this country and presumably elsewhere it is most convincingly adequate and efficient, both in its scientific and in its more practical and clinical aspects. That it has been so ably translated into the English language is cause for congratulation.

Taschenbuch der Diagnostik und Therapie der Lungentuberculose. By H. GERHARTZ. Berlin, Wien.: Urban and Schwarzenberg.

This is a small light volume of some two hundred pages of a size that would easily slip into a pocket or handbag. It contains much information in condensed and tabular form which must be of great value to German and Continental practitioners; it is of little or no value to the English and American profession. There are 48 illustrations, many of which illustrate methods of percussion of so elementary a nature as to be unnecessary; there are some useful diagrams showing the localization of tuberculous processes in various lobes, etc., and some excellent colored plates showing tuberculin reactions and pathological specimens. There are a few x-ray plates of mediocre quality.

The book is divided into four large sections: (*a*) the proof of tuberculous infections, which considers diagnostic tuberculin reactions, etc.; (*b*) the recognition of tuberculosis, a long section on diagnosis of all stages in which far too much attention is paid to sputum examination, the x-ray, and the diagnosis of cavities, etc., and not enough to early diagnosis; (*c*) the treatment of tuberculosis, in which many pages are devoted to the formulae of various drugs and tables of prescriptions, and only a few pages to hygienic sanatorium treatment; (*d*) the prognosis of pulmonary tuberculosis.

As is not uncommon with many such pocket editions the author tries to cover far too large a field and loses sight of many important points in a mass of unessential details. The book has many good points, however, and should be of value to German physicians.

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101 Tremont Street, Boston, Mass.

TROPICAL MEDICINE IN ELIZABETHAN DAYS.

In the *Annals of Tropical Medicine and Parasitology* for May, 1912, Dr. Charles Singer, recorded some of his observations on "Early references to tropical diseases." Notably he referred to a remarkable book,* published at London in 1598 by one "G. W.," entitled "The Cures of the Diseased, in Remote Regions, Preventing Mortalitie, Incident in Forraine Attempts, of the English Nation."

In his dedication of this book to Queen Elizabeth, the author says:

"In my unjust imprisonment in Spayne, it pleased God to afflict me with a *Tabardilla* Pestilence; whereof being in cure by an especiall Phisition of the King, I observed his Methode for the same, and such other diseases as have perished Your Majesties people in the Southerne part. Which Remedies have since by my direction taken the like good effects."

"Tabardilla," Dr. Singer believes, may refer to yellow fever, dengue, or typhus. Other diseases described by "G. W." are "calenture," heatstroke or malaria, and "espinlas," of which he says:

"The partie having the Espinlas will be giddie in the head and have pain and pricking at his breast as with many thorns: wherefore I thinke it is so called of Spina and Espina, the Latine and Spanish words for a Thorne.

There will be upon the Huesso radio (*Anglice*, radial bone) or Focell, being the upper part of his armee, a hand breadth about the wrist, a little Kernell by which it is certainly knowne. And he that hath this Disease will not have appetite to meate and drinke."

This malady does not seem identifiable with any modern tropical disease.

Scorbutus is described under its Spanish name of "tiñoso":—

"It is an infecting Disease, Sufficientlie known unto Seafaring men; who by putrified meates and corrupted drinkes, eating Bisket flowrie, or foule crusted, wearing wet apparell . . .and slothful demeanour. . . obtained the same. The disease is so ordinary at Sea, as it hath seldome seen any Ship or Pinnice, to be foure moneths upon the Voyage. . . but some of the Companie have had this Disease. It is a certaine and assured medicine against this Disease to have such quantitie of Beere, brewed with Graynes and Long pepper, as in the morning twice everie weeke there may be given a good draught to a man. . . But White Wine or Syder, boyled and brewed with Graynes and Long peper, in like quantitie is very singular good. And it is not fit to suffer the gums to abound with flesh; and therefore sometimes let them bleede and cleere them withe strong Vinegar."

Apparently "G. W." was a navigator, perhaps a gentleman explorer, and not a physician, for in his preface he says:—

"The cause that induceth mee publiquelie to express the Cure of Diseases of such consequence (which) every judiciall conceite may perceive to have been the only prejudice to our Nation in the expeditions of our time to the Southerne parts; from whence they. . . have returned with renouned victorie, yet exceedinglie opprest withe extreame and penurious sicknesse, that hathe much more prevented the proceeding and performing of their pretensions than the power of Enemies, is not that a purpose, practitioner-like in Phisicke or Chirurgerie, to assume unto me anie knowledge in those Sciences and Faculties: But to possesse all men of remedies for such infirmities, as in my owne experience, have infinitelie impaired English Forces in intemperate Clymates, which I publish for the good of those whom cause may compell to have use thereof, and would be so censured of all."

With the recrudescence, in our own day and community, of the study of tropical disease, it seems particularly pertinent thus to turn back to this early treatise on tropical medicine from the Elizabethan days of Drake and Hakluyt and Frobisher and Raleigh.

* Reviewed in the *British Medical Journal*, November 23, 1912.

GERMAN MEDICAL INSURANCE.

In the issue of the Journal for Jan. 1 we commented on the conflict between the physicians and the insurance companies in Germany rela-

tive to the administration of the national medical insurance act. In view of this conflict, the Prussian government has now issued a new imperial insurance order, of which paragraphs 368 and 370 deal with the methods available to the insurance societies, should the latter fail to secure the services of a sufficient number of physicians to administer the act.

"Paragraph 370 authorizes the insurance societies to pay over a lump sum of money to the insured persons in lieu of medical attendance, medicines, and certain appliances, provided that the insurance societies can show that through no fault of their own they have been unable to secure the services of a sufficient number of medical men under contract. The offer of a contract on the part of the medical practitioners must contain 'suitable or appropriate' provisions (*angemessene*), and it is on the interpretation of this particular word that the action of the Prussian ministers is based.

"Paragraph 368 provides for the giving of medical treatment in the absence of any contracts at all. In this instance the doctors employed would be the so-called 'advisory staffs,' or medical men who, in defiance of the medical organizations are prepared to do work for the insurance societies, but will not put their names to paper."

The Prussian government has further determined that the word *angemessene* shall be so interpreted that if "the doctors offer service with free choice of doctor, the institution of arbitration courts, and the right of control by medical organizations, the society will be justified in regarding the provisions as unsuitable. This decision indicates that the government attitude is adverse to the physicians.

In the issue of the *Berliner Aerzte-Correspondenz* for Dec. 13, 1913, the executive of the federation of German medical societies, in conjunction with the Leipzig League, published a statement pointing out that the struggle is not directed against the beneficiaries, but only against the executives and managers of the insurance societies. This statement further contains a number of general and special instructions to local medical societies in dealing with conditions which may arise under the provision of the above paragraphs. It appears that the German physicians are determined to oppose the government and the insurance societies fearlessly in the maintenance of their rights, and it is to be hoped that their opposition may prove more efficacious than was the case with the medical profession of England.

TYPHOID IN THE ARMY AND NAVY.

REPORT from Washington, D. C., on Dec. 31 states that during the year 1913 the United States Army, with an enlisted strength of over 80,000, had only two cases of typhoid fever, neither fatal, one of them being in a man not immunized by antityphoid inoculation. Prior to 1910 there used to be about 250 cases, with 25 deaths annually. In 1910, the year voluntary inoculation was begun, the incidence rate was 2.32 per 1000. In 1911 it was 0.8; in 1912, 0.26. It is interesting to note that coincidently the incidence rate of tuberculosis has fallen from 4.7 per 1000 in 1909 to 3.49 in 1912.

Among the 40,000 sailors of the United States Navy there were only 7 cases of typhoid fever, with no fatalities, during the year ended June 30, 1913. The incidence rate of typhoid in the navy in 1911 was 3.61 per 1000; in 1912, 0.92; in the nine months ended Oct. 1, 1913, only 0.3. Antityphoid inoculation in the navy was begun later and has proved harder to enforce than in the army. Its benefit as a prophylactic procedure in both branches of the service seems established beyond question.

MARRIAGE AND EUGENICS IN WISCONSIN.

REPORT from Milwaukee, Wis., on Jan. 7 states that, in view of the difficulty of securing medical certificates under the new eugenic marriage law, persons intending matrimony are taking advantage of the common law marriage, which is legal upon filing a contract for a fee of ten cents. The Ashland Medical Society has voted to furnish examination certificates, including the Wassermann test, for a fee of eight dollars. One man who wished to marry a girl in order to legitimize his expected child by her, was refused license to do so because he had no certificate. Apart from its bearing on eugenics, this action seems at least somewhat unjust to the girl and the child.

MEDICAL NOTES.

DISCONTINUANCE OF SEX HYGIENE LECTURES.—Report from Chicago states that on Jan. 7 the local board of education voted to discontinue the

giving of so-called sex hygiene lectures in the public schools, after a trial of one year.

THE ANTIQUITY OF THE TRUSS.*—At the site of an old Franco-Roman village, just south of Clermont-en-Argonne, were found two trusses of iron, dating from the eighth century; one a left inguinal, so damaged and soiled that it was almost disintegrated; the other heavier and better preserved, a right scrotal, with a scrotal pad of about 5 cm. dimensions. Most of the relics found in the excavation of this town have been sent to the Museum Saint-Germain-en-Saye, where they are kept in a special cabinet, the gift of Dr. Mennier of Laroye.

OPERATION ON KING ALFONSO.—Report from London on Jan. 1 states that King Alfonso, of Spain, has recently come to London for the purpose of having a growth surgically removed from his throat.

A LONG RETAINED LITHOPEDION.—In the issue of the *Lancet* for Dec. 27, 1913, is reported from Toronto a case of a lithopedion retained in the abdomen for 42 years, and during four succeeding normal pregnancies, and finally removed by laparotomy. This is believed by the author to represent the world's record in this regard.

SMALLPOX AT GUANTANAMO.—Report from Washington, D. C., on Jan. 6 states that 34 new cases of smallpox, nine of virulent character, have developed at the Guantanamo naval station among sailors exposed during the recent outbreak aboard the United States battleship *Ohio*. The station has been quarantined and the *Ohio* is being fumigated.

BOSTON AND NEW ENGLAND.

BOYLSTON MEDICAL SOCIETY.—On Friday evening of last week, Jan. 9, an open meeting of the Boylston Medical Society was held at the Harvard Medical School, to which all undergraduates and members of the medical profession were cordially invited. An address was given by Dr. J. M. T. Finney, associate professor of surgery at Johns Hopkins University and president of the American College of Surgeons.

AESCULAPIAN CLUB MIDWINTER MEETING.—Invitations have been issued to the twelfth annual mid-winter meeting of the Aesculapian Club of Boston, to be held at the Harvard Club on Saturday evening of this week, Jan. 17. The speakers will be Mr. Abraham Flexner, of the general education board of the John D. Rockefeller Fund, on "Some Aspects of the European Regulation of Vice"; and Dr. Richard P. Strong, professor of tropical medicine in the Harvard Medical School, on "Tropical Medicine as it Interests Us in Our Larger Seaports."

TWO LIVING CENTENARIANS.—Mrs. Clarissa Collins, of New Haven, Conn., who is said to have been born on Jan. 1, 1814, celebrated recently her supposed centennial anniversary. Her health is excellent.

Joseph Byxbee, a retired sea-captain of Norwalk, Conn., is said to have been born in 1810.

A CENTENARIAN.—John Weeks, who died on Jan. 5 at Norwalk, Conn., is said to have been born in June, 1808, at Fordham, N. Y., He had been blind for a year preceding his death, but otherwise his health remained vigorous until early last December.

WORK OF BOSTON DISPENSARY.—The recently published 117th annual report of the Boston Dispensary records the work of that institution for the year ended Sept. 30, 1913. During this period, 113,000 patients, of whom 11,000 were babies and children, visited the various clinics; and over 8000 patients were treated at their own homes. In the hospital for children 323 patients were received. To maintain and continue the present service of the Dispensary to the community, the sum of $30,000 is required annually, and liberal subscriptions towards this amount are urgently requested.

CHILDREN'S HOSPITAL CONVALESCENT HOME.—At the annual meeting of the corporation of the Convalescent Home of the Children's Hospital of Boston, held in this city last week, the secretary's report showed that during the past year 826 patients were treated at the Home.

BOSTON VITAL STATISTICS IN 1913.—During the year 1913, 9378 marriages and 19,299 births were recorded in the city of Boston, both numbers being larger than in any previous year. The total number of resident deaths was about 10,300, corresponding to a corrected rate of 14.1 per 1000, as compared with 14.2 per 1000 in

* From *La Chronique Médicale*, August, 1913.

1912. The gross death-rate (11,890 persons) remains the same as last year, 16.17.

"The rate for typhoid fever will be about .82 per 10,000 population, against the low record of .79 in 1912. If deaths of non-residents be deducted, the corrected rate becomes .69, against .68 in 1912.

The rates for scarlet fever and diphtheria are both higher than in 1912.

Per 10,000 population, the death-rate from scarlet fever will be about 1.06, against 1.04 for the preceding five years, and the death-rate from diphtheria will be about 2.12, against 2.60 for the preceding five years.

The particularly bright spots in the year's record are the low rate from pulmonary tuberculosis—about 14.4, against the previous low record, 15.2, made in 1912—and the estimated infant mortality rate, 107 per 1000 births registered."

NEW YEAR'S GIFTS AND BEQUESTS.—Mr. David D. Stewart, of St. Albans, Me., has recently made New Year's gifts aggregating $230,000 to 12 colleges, hospitals and charitable institutions of Minnesota, 9 of them being in Minneapolis.

The will of the late Dr. J. F. Frisbie, who died on Dec. 17, 1913, in Newton, Mass., contained a bequest of $25,000 for the foundation of a Frisbie Memorial Hospital in Rochester, N.H., the testator's native home.

The will of the late Horace W. Wadleigh, of Cohasset, who died at Boston on Dec. 26, 1913, contains public legacies of over $120,000. Among these are bequests of $5000 each to the New England Peabody Home for Crippled Children, the Boston Home for Incurables, the Industrial School for Crippled and Deformed Children, and the Boston Floating Hospital, and $2000 each to the Children's Hospital, Boston, the Massachusetts Charitable Eye and Ear Infirmary, the Vincent Memorial Hospital, the New England Hospital for Women and Children, St. Luke's Home for Convalescents, St. Monica's Home for Colored Women and Children, Roxbury, and the International Hospital, Naples, Italy.

NEW YORK.

OYSTERS AND THE PUBLIC HEALTH.—In the latest issue of the *Monthly Bulletin* of the City Health Department the subject of "Oysters and the Public Health" is treated *in extenso*. In the precautions taken by the department to insure that oysters sold in the city shall be free from contamination careful investigation of the physical conditions prevailing at the points furnishing the oyster supply has for some time past been systematically conducted, and particular attention has been paid to the location of the so-called "floats" and "drinks" situated not only within the city limits, but also in the surrounding country. While an outbreak of typhoid fever at Northport, Long Island, in 1912, which was at first supposed to be due to contaminated oysters, was subsequently demonstrated to be due to infected milk, a typhoid outbreak the same year at Goshen, Orange County, was traced by Stiles to oysters infected by "drinking" at the mouth of a sewage-polluted creek emptying into Jamaica Bay. In New York City, however, it is believed that oysters probably play but a small part, if any, in the annual autumnal rise of typhoid, for the infections constituting this rise regularly occur in July and August, a time of the year when there is only a very small consumption of oysters. Still, the sale of oysters at retail is regulated by permits specifying certain strict requirements, and somewhat more than a year ago the board of health passed a resolution declaring that it shall be unlawful to float oysters and other shellfish in polluted waters in the city, and that none which have been floated or treated with polluted water, or which are shown by examination to be polluted, shall be brought into the city or held, kept, sold, or offered for sale at any place in it.

COLUMBIA UNIVERSITY.—At a meeting of the trustees of Columbia University, held Jan. 5, the resignation was accepted of Dr. Livingston Farrand, junior professor of anthropology, who has been elected president of the University of Colorado. Dr. Francis Carter Wood, director of cancer research, at the request of that department, was assigned to a seat in the faculty of pure science. At the meeting a gift of $2500 for surgical research, from an anonymous donor, was announced, and among the other donations during the month was one of $100 from Dr. Willy Meyer, for the "Deutsches Haus."

TYPHUS FEVER AMONG IMMIGRANTS.—During the recent voyage of the Italian steamship *Roma* from Marseilles to New York, a case of typhus fever occurred on board. The vessel touched first at Providence, R. I., and was detained there in quarantine for a short time. On

her arrival at New York on Jan. 7, 250 of the immigrants aboard, 30 of them with suspiciously high temperatures, were removed and placed under observation at Hoffman Island for 14 days. Four of these persons have since developed typhus. The vessel has been disinfected. Meantime, report from Providence states that four cases and one death of typhus fever have occurred in that city since the coming of the *Roma*.

A Lonely Centenarian.—Joseph Wormuth, who died recently at Shinopple, Delaware County, was said to have been born in 1809. He was an early pioneer settler along the Delaware River, and fought in the ranks throughout the Civil War. He subsequently engaged in farming and lumbering, and remained in active and vigorous health until three months ago. He was a widower and leaves no surviving children.

Infant Mortality in 1913.—Report from New York on Jan. 5 indicates that the infant mortality rate in that city in 1913 was the lowest on record.

"The infant death-rate for the year is 102 per thousand births, the lowest infant rate in the history of the city. Last year the rate was 105.3 per thousand births. This means a decrease in the death-rate of 3.3 per thousand births, or the saving of over three out of every thousand babies born as compared with last year. The total number of deaths under one year of age from all causes in the greater city last year was 13,779. In 1912 there were 14,289 such deaths, that is 510 fewer babies died in 1913 than in 1912. Estimating on the increased population for the year, the report says this means a saving of 1,069 infant lives. The general health report of the city for 1913 shows a reduction in the death-rate per thousand population for all ages from 14.11 to 13.76."

Harvey Lecture.—The sixth lecture in the current series before the Harvey Society will be given at the New York Academy of Medicine on Jan. 17, by Prof. Victor C. Vaughn of the University of Michigan, on "The Phenomena of Infection."

Current Literature

Medical Record.

December 27, 1913.

1. *Muhlberg, W. *A Few Practical Observations—the Result of Eight Thousand Examinations of Urine.*
2. Aulde, J. *Solving the Mystery of Bright's Disease—A Preliminary Paper.*
3. Craig, H. A. *The Treatment of Pneumonia by Bacterial Vaccines.*
4. Boehme, G. F., Jr. *The Determination of Changes in the Pain Sensations.*
5. Maher, S. J. *The Progeny of the Tubercle Bacillus.*
6. Foster, G. S. *Appendiceal Infection, with Abscess Formation. Should the Appendix be Removed at the Primary Operation?*
7. Sobgatz, F., and Bolend, R. *The Action of Acetic Acid on Syphilitic Blood Stains.*
8. Mullan, E. H. *The Medical Inspection of Immigrants at Ellis Island.*
9. Barnes, L. E. *Eyestrain.*

1. Muhlberg records a few observations in a series of eight thousand specimens of urine from applicants for life insurance. Cylindroids (mucin threads) in excess were found in about 5% of the samples, and subsequent specimens from the same individuals often showed numerous casts and traces of albumin. In one case of nephritis now under his observation casts are usually very numerous, but at times are almost entirely replaced by typical cylindroids. [L. D. C.]

New York Medical Journal.

December 27, 1913.

1. Ewing, J. *The Cancer Research Hospital.*
2. Goldman, A. L. *Ileocolitis with Meningeal Symptoms.*
3. Ball, C. F. *Serodiagnosis (Abderhalden) of Cancer and Pregnancy.*
4. Auerbach, J. *Chronic Suppuration of the Middle Ear.*
5. Collings, H. P. *The Resorts We Visited.*
6. *Magida, N. *Acromial Breathing as an Aid in the Diagnosis of Apical Pulmonary Tuberculosis.*
7. Bartholow, P. *The Etiology of Pellagra.*
8. Goltman, A. *The Treatment of Bronchopneumonia in Children.*

6. Magida has been testing the value of acromial breathing as a diagnostic sign in apical phthisis at the Post-Graduate Hospital, New York. In this disease auscultation at the acromion process increases and amplifies all the auscultatory signs which are ordinarily obtained over the apices, so that a slight lesion should be detected more easily by listening at this place. The writer found "acromial breathing" present in all of 28 cases in the first stage, in 8 out of 14 second stage cases, and in 2 out of 10 third stage cases. He is convinced that this method deserves a place in physical diagnosis. [L. D. C.]

The Journal of the American Medical Association.

December 27, 1913.

1. *Bloodgood, J. C. *Control of Cancer.*
2. Jordan, E. O. *The Municipal Regulation of Milk-Supply.*
3. Woods, M. *Seven Cases of Epilepsy in Children Traced to Single Alcoholic Intoxication on the Part of One or Both Parents Otherwise Teetotalers.*
4. *Womer, W. A. *Results of Staphylococcus Spray Treatment in Forty-Two Cases of Diphtheria Carriers.*
5. Rogers, A. C. *The Desirability of Early Diagnosis of Mental Defect in Children, and Mental Tests as an Aid.*
6. Goodhardt, S. P. *Amnesias of Tobacco and of Malarial Origin, with Report of Two Cases.*
7. Stiles, P. G. *A Case of Apparent Food-Poisoning of the Type Known as Botulism or Allantiasis.*

8. LOWELL, H. *Burn of Eyes from Contents of Golf-Ball Core.*
9. *CABLES, H. A. *Quinin and Urea Hydrochlorid in the Treatment of Sciatica.*

1. Bloodgood believes that the future success in the control of cancer lies in education of both layman and physician. He strongly urges early operation or exploration in the precancerous stage.

4. Womer states that the staphylococcus spray in diphtheria causes no unpleasant symptoms, but does not appreciably lessen the period of quarantine. The preparation and distribution of the spray is a laborious procedure, especially if there are many cases. Apparently most carriers do not spread the disease after sixty days from the day the disease begins. Public health officials could work more effectively if they had some practical method of determining the virulence of diphtheria bacilli form in the throats of carriers.

9. Cables has treated eight cases of sciatica with deep, but not intraneural, injections of a 4% solution of quinin and urea hydrochlorid in normal salt solution given on successive days until relief has come. The largest number of injections was eight. He thinks this method worth further trial. [E. H. R.]

JOURNAL OF INFECTIOUS DISEASES.

NOVEMBER, 1913.

1. *MEYER AND HARDENBERGH. *On the Value of the "Abortin" as a Diagnostic Agent for Infectious Abortion in Cattle.*
2. HEKTOEN. *The Production in Monkeys of Antibodies for Humane Corpuscles.*
3. *DE WITT. *Report of Some Experimental Work on the Use of Methylene Blue and Allied Dyes in the Treatment of Tuberculosis.*
4. BROADHURST. *The Effect of Meat and of Meat Extract Media upon the Fermentative Activity of Streptococci.*
5. *ARLSIN. *The Influence of Strychnin, Caffein, Chloral, Antipyrin, Cholesterol and Lactic Acid on Phagocytosis.*
6. KENDALL, DAY *and* WALKER. *Observations on the Relative Consistency of Ammonia Production by Certain Bacteria.*
7. LARSON AND BARRON. *Report of a Case in Which the Fusiform Bacillus was Isolated from the Blood Stream.*
8. KRUMWIEDE AND PRATT. *Fusiform Bacilli: Cultural Characteristics.*
9. *FULLER AND ARMSTRONG. *The Differentiation of Fecal Streptococci by Their Fermentation Reactions in Carbohydrate Media.*
10. KING AND HOFFMANN. *Spirochaeta Suis, Its Significance as a Pathogenic Organism. Studies on Hog Cholera.*
11. HARTMAN. *The Antigenic Properties of the Constituents of Pneumonic Exudate.*
12. LARSON AND BELL. *A Study of the Lesions Produced by Bacillus Proteus.*

1. Meyer and Hardenbergh conclude that the "Abortin test," as recommended by the English Commission, is thoroughly unreliable. They have prepared a purified material for intravenous injection, which has yielded encouraging results. But even with this modified material a high percentage of healthy animals show a positive febrile reaction. A positive reaction, even in an infected animal, does not show the stage or acuteness of the disease process.

3. Methylene blue was found to penetrate the tubercle, stain the living tubercle bacillus, and in some cases kill the bacillus in vitro, and in others lessen its virulence. When added to the culture media, a relatively small percentage of the substance inhibited the growth of the human tubercle bacillus. The author was unable to influence the disease in guinea-pigs through the therapeutic use of methylene blue.

5. Arlsin has made a thorough study of the influence of certain drugs upon phagocytosis. He found that the following general rules were true, *i.e.* substances favoring oxidation promoted phagocytosis and increased the immune bodies. The reverse of this general rule was found true in most instances. Alcohol, chloroform, ether, chloral, morphin and potassium cyanid depress phagocytosis in vitro. Conversely, sodium iodoxybenzoate, strychnin and certain colloid metals stimulate phagocytosis. The middle zone is occupied by such drugs as caffein and the antipyretics, which influence neither oxidation nor phagocytosis. It was found also that those drugs which depressed phagocytosis in vitro had a similar action when studied in vivo. He considers it important to consider with care the effects of agents on the processes of immunity when they seem indicated in infectious diseases.

9. The bacterial flora of human feces is characterized in general by the presence of streptococci producing large amounts of acid in dextrose (3.5-4%). The most frequent in occurrence is Str. fecalis (65%). Str. mitis is very often demonstrable. Str. equinus prevails in horse dung (55%), and Str. salivarius in cow dung (64%). [L. H. S.]

ANNALS OF SURGERY.

OCTOBER, 1913.

1. *MULLER, G. P. *The Treatment of Tuberculous Cervical Lymphadenitis.*
2. DAVIS, J. S. *Excessive Thickening of Thiersch Grafts Caused by a Component of Scarlet Red (Amidoazotoluol).*
3. NOLAND, L., AND WATSON, F. C. *Embolism and Thrombosis of the Superior Mesenteric Artery.*
4. HERTZ, A. F. *The Cause and Treatment of Certain Unfavorable After-Effects of Gastro-Enterostomy.*
5. SCHLEY, W. S. *Rectus Transplantation for Deficiency of Internal Oblique Muscle, in Certain Cases of Inguinal Hernia.*
6. *HULL, A. J. *Recurrence of Inguinal Hernia.*
7. *WHITE, G. R. *Contracture of the Psoas Parvus Muscle Simulating Appendicitis.*
8. COLT, G. H. *The Reduction of the Fragments Preliminary to Internal Splintage in Cases of Fracture of the Long Bones.*
9. ASHHURST, A. P. C. *Fractures through the Trochanters of the Femur.*
10. *STEINKE, C. R. *Simultaneous Fracture of Both Patellae.*
11. HORWITZ, A. E. *Uncomplicated Fractures of the Tarsal Scaphoid.*
12. MCDILL, J. R. *Cyst of the Fifth Metacarpal Bone.*
13. SHERRILL, J. G. *Direct Suture of the Brachial Artery Following Rupture, Result of Traumatism.*
14. POOL, E. H. *Suction Tip for Aspiration in Abdominal Operations.*

1. Müller's article is a study of 103 cases of cervical, inguinal and axillary tuberculous lymphadenitis in the service of Dr. Frazier at the University Hospital, Philadelphia, during the past twelve years. Sixty-nine of these cases have been traced, of which 53 were cured, 9 recurred, and 7 were dead. The operative mortality was nil. He considers sources of infection and portals of entry and surgical, x-ray, and tuberculin treatment, with especial reference to scar, nerve injury and recurrence. He advocates surgery in the majority of cases, employing the x-ray only in old indurated cases preliminary to operation and after curettage of sinuses and caseous abscesses. The use of tuberculin in such cases he regards as rational.

6. Hull's communication is based upon 57 cases which he has operated upon for recurrent inguinal hernia; 45 of these occurred after an operation of this type: opening of canal, ligation of neck of sac, and suture of the conjoined tendon over the cord to Poupart's ligament. The hernia was always to the inner side of the internal ring, pushing forward the peritoneum and transversalis fascia. Seven of the 57 occurred after an operation of this type: same as former with suture of conjoined tendon beneath cord to Poupart's ligament. The hernia was always to the outer side of the internal ring. He has rarely operated for a recurrence after a typical Bassini operation. After high ligation of the neck of the sac, and amputation, he carries the stump through the internal ring and fixes it one and one-half inches above the ring. Hull regards this procedure as "probably one of the most valuable steps in the operation for radical cure of hernia."

7. White reports six cases of pain and tenderness in right iliac fossa with apparent tumor, but without fever or digestive disturbance, operated upon during the past four years, in which the psoas parvus was found in a state of contracture and projected forward into the abdominal cavity. Tension was relieved by incising the main tendon and accessory bands. No other pathology was evident and this procedure has apparently cured.

10. Steinke reports two cases of simultaneous fracture of both patellae operated upon by Dr. C. H. Frazier of Philadelphia. He has made a careful search through the literature, giving epitomies of 43 cases and tabulating 44 cases, including the two he reports, with reference to sex, age, manner and type of fracture, mode of treatment and result.

[T. W. H.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

DECEMBER, 1913.

1. *ALLISON, N., AND BROOKS, B. *The Mobilization of Ankylosed Joints; an Experimental Study.*
2. OSGOOD, R. B. *The End Results of Attempts to Mobilize Stiffened Joints.*
3. DEAVER, J. B. *Cholecystectomy.*
4. *MCKENNA, C. H. *Drainage of the Upper Intestinal Loop for the Relief of Ileus: Based upon Eight Clinical Cases Successfully Operated, and Animal Experimentation.*
5. *BROWN, W. L., AND BROWN, C. P. *Preliminary Report on Experimental Bone and Periosteal Transplantation.*
6. *CABOT, H. *Factors Influencing the Mortality of Suprapubic Prostatectomy.*
7. MEYER, W. *The Early Diagnosis of Cancer of the Esophagus.*
8. BARRINGER, B. S. *Renal Function.*
9. MALL, F. P., AND CULLEN, E. K. *An Ovarian Pregnancy Located in the Graafian Follicle.*
10. *BULKLEY, K. *Malignant Disease of the Testicle Retained Within the Abdominal Cavity.*
11. TAYLOR, H. C. *Educational Work in Carcinoma of Uterus.*
12. FRAZIER, C. H. *Lesions of the Hypophysis from the Viewpoint of the Surgeon.*
13. ROCKEY, A. E. *The Problem of Intestinal Stasis.*
14. *CUNNINGHAM, J. H., JR. *The Operative Treatment of Acute Gonorrheal Epididymitis.*
15. BRYANT, W. S. *The Protective Mastoid Operation; an Operation of Election.*
16. REICHELDERFER, L. H. *Postural Treatment of Post-Operative Abdominal Adhesions.*
17. MILLER, R. T., JR. *The Falciform Ligament of the Liver as Plastic Material Available for Use in the Upper Abdomen.*
18. COBURN, R. C. *The Selection of the Anesthetic Upon the Basis of Its Ultimate Physiology.*
19. RHODES, G. B. *A Modification of the Rectus Fascial Flap in Inguinal Hernioplasty.*

1. Allison and Brooks in a very interesting series of experiments on dogs' joints found the following conditions to develop: The denuded joint surfaces were at the end of five days covered with granulation tissue which grew from the marrow spaces. This granulation tissue developed into fibrous tissue, which later leads to fibrous ankylosis and is, according to Hoffa, the primary stage of osseous union. With the interposition of fascia lata, either in free pieces or in pedunculated flaps, the direct union of the denuded joint surfaces was prevented only in case the fascia transplant underwent necrosis and absorption. In those instances in which the flap persisted, in part, the islands thus formed acted as adhesions between the joint surfaces. There was no advantage in the use of a pedunculated flap. On the contrary, the pedicle persisted as an intra-articular band which checked joint motion. With the fascia impregnated with silver, the union of the denuded joint surface was prevented. Cargyle's membrane was absorbed within five days.

4. McKenna, as a result of dog experimentation with high bowel obstruction, makes the following deductions: Disturbance of innervation to the upper intestinal tract in the human sufficient to stop peristalsis, produces the same symptoms as mechanically blocking the same amount of intestine in the dog. High intestinal stasis, whether paralytic or mechanical, is much more serious than low obstruction. The fatal factor in acute obstruction may be found in the secretions from the duodenal mucosa. The fatal factor in general peritonitis may be due to a duodenal secretion and not to the effect of infection *per se*. When the condition of acute ileus is established early drainage of the duodenum is indicated, and this is best performed by jejunostomy.

5. Brown and Brown were unable in any experiment to reproduce bone from free periosteal transplants into the subcutaneous tissue and muscle, or to reproduce bone in the periosteal flap raised, left in contact with the bone, passed through muscle, and again contacted with periosteum. They were unable to reproduce bone in any experiment from free bone transplants, without periosteum, with the subcutaneous tissue and muscle, regardless of the size of the transplant. Absorption was the rule in every case. They were also unable to reproduce bone in a single experiment where bone was transplanted with free periosteum left intact, into muscle or subcutaneous tissue. These were also all absorbed. They were, however, uniformly able to reproduce bone when transplanted and contacted with living bone, or if it were in a position where it had a function to perform. Other necessary conditions being present for its reproduction, bone reproduces bone without the aid of periosteum. Transplants contacted with living bone and with no function to perform were inclined to absorption. Periosteum is not at all essential to the life and growth of bone as far as their work showed.

6. Cabot believes that because of greatly lessened shock and danger of post-operative lung and heart complications in suprapubic prostatectomy, spinal anesthesia is far more safe and indicated than any other form. He believes also that the usual methods of control of hemorrhage are careless and illogical, and advocates suture of the neck of the bladder as the most efficient means. With spinal anesthesia, and lessened shock, with efficient control of bleeding, the mortality from suprapubic prostatectomy will be greatly lessened, so that this method may be considered the route of election.

10. Bulkley believes that malignant disease of the abdominal testes occurs about once in 60,000 cases. About one in every four cases of malignant abnormally situated testicle is found within the abdominal cavity. About one malignant abdominal testicle occurs to each 15 malignant scrotal testicle. About one of each 75 abdominal retained testes will become malignant.

14. Cunningham believes that epididymotomy offers the best means of ending an acute epididymitis.

[E. H. R.]

THE INDIAN MEDICAL GAZETTE.

OCTOBER, 1913.

1. HOOTON, A. *A Note on Some Uses of a Modified Purin-Free Diet.*
2. SMITH, C. H., AND GRAHAM, G. F. *Relapsing Fever in Chitral, with an Account of Successful Animal Inoculations.*
3. MUNRO, D., AND WHITE, A. D. *Delayed Chloroform Poisoning.*
4. DUNN, J. J. F. *On the Use of Scopolamine, Morphine, and Atropine in Preventing Shock During Chloroform Anesthesia.*
5. SHEPPARD, A. L. *Intestinal Obstruction and Scurvy.*
6. NAPIER, A. H. *Is Syphilis a Factor in Blackwater Fever?*
7. GUPTA, S. C. D. *Notes on Some Excisions of the Thyroid Performed at the Sree Sree Sree Biy Hospital, Nepal (Khatmundu).*
8. DAS, B. *A Case of Myelocythaemia.*
9. ROUX, F. *Note on the Use of Chionanthus Virginiana in Diseases of the Liver.*
10. ROW, T. G. S. *Round Worms and Pregnancy.*
11. SCOTT, L. B. *A Surgical Curiosity.*

NOVEMBER, 1913.

1. LANE, C. *Ankylostomes and Ankylostomiasis in Bengal.*
2. *RODGERS, R. T. *Dysentery in the Raipur Central Jail.*
3. WALL, F. *Treatment of Snake Poisoning.*
4. WHITE, P. C. *A Case of Cobra Poisoning.*
5. SUDHONARAIN. *Epidemic Cerebro-Spinal Meningitis.*
6. NEWMAN, E. A. R. *Steam Sterilization and Hints on the Choice of a Sterilizer.*
7. ROGERS, L. *Retractile Pointed Stop-Cock Cannula for Giving Intravenous and Intraperitoneal Saline Injections Without Incision.*

2. From a careful statistic and clinical study of dysentery cases occurring in the Raipur jail from 1896 to 1912, inclusive, Rodgers finds them of mixed causation. In the amebic cases, emetine hydrochloride proved to be the best treatment. In the Shiga cases, treatment with Shiga vaccine gave good results, but prophylactic inoculation appeared to be of even greater value. The author believes this procedure harmless, and capable of being employed also in cases where terminal dysentery is feared.

[R. M. G.]

THE PRACTITIONER.

NOVEMBER, 1913.

1. *SCOTT, H. H. *Widal's Agglutination Reaction as an Aid in Prognosis in Enteric Fever. Based on a Study of Over Fifteen Hundred Consecutive Examinations.*
2. *KIDD, F. *The Diagnosis and Treatment of Haemic Infection of the Urinary Tract.*
3. BLUMFELD, J. *A Critical Summary of Some Recent Work on Anesthesia.*
4. BREND, W. A. *Law and Medicine,* 1912-1913.
5. JEX-BLAKE, A. J. *Recent Work on Diseases of the Lungs.*
6. *PATRICK, J. K. *Tuberculin in the Diagnosis and Treatment of Pulmonary Tuberculosis.*
7. *COOKE, A. D. S. *Tuberculin in the Diagnosis and Treatment of Tuberculosis.*
8. *DE KEATING-HART. *The Rational Treatment of Cancer.*
9. *MONOD, G. *On the So-called Movable Kidney Disease.*
10. ZUNDEL, C. E. *Infantilism.*
11. THORNE, L. T. *The Effect of Nauheim Baths upon Cardiac Conductivity.*
12. KENNEDY, C. M. *The Symptomatology of Cholelithiasis.*
13. *MILLER, A. G. *Is Enlarged Prostate the Cause of Residual Urine?*
14. TIRUMURTI, T. S. *The Relation between the Pancreas and Diabetes. With Notes of a Case of Pancreatic Calculi.*
15. CUSTANCE, G. W. M. *Case with Comments. Acute Pemphigus Due to an Infection of a Diplococcus.*
16. WALSHE, S. J. A. H. *Case with Comments. Effects on the Mental State of Minor and Major Attacks in Epileptic Insanity.*
17. ADAMS, J. B. *The Doctors in the Decameron.*

1. Scott, who has made a detailed study of typhoid and paratyphoid fever in Jamaica, bases this paper on an examination of 1500 specimens of blood on which he has done the Widal reaction. As a standard he decided that a serum of dilution 1:30 should agglutinate an 18° broth culture of the organism in 15 minutes, a dilution of 1:50 in 30 minutes and a 1:100 in one hour. He is of the opinion that a careful study of the patient's history, the degree and promptness of agglutination with both the typhoid and the paratyphoid organism give important points as to the prognosis and course of the disease. These points he discusses in detail with many illustrative cases. In localities where the disease is so common as it apparently is in Jamaica such studies as these are of great value.

2. Kidd believes that there is much to be done on the subject of pus in the urine and bacterial infections of the urinary tract. In this paper he discusses methods of examination, vaccine treatment, treatment by nephrectomy, and the diagnosis and treatment of pyelitis. He deplores the air of hopelessness which has grown up around chronic cases simply because they have not been examined.

6. In this paper Patrick discusses the preparation of tuberculin, technic of administration, the various kinds of tuberculin, dilution, use in diagnosis and treatment, the various reactions, and the selection of cases and principles of dosage. The paper, while presenting nothing new, is an interesting review of the subject.

7. This paper, shorter than the preceding, covers in a very general way the same subject, *i.e.* tuberculin in diagnosis and treatment.

8. In a short article on the rational treatment of cancer, the writer concludes that surgery may cure before the period of general infection: failure in operation will be very rare if associated with fulguration, even after a limited excision: thermo-radiotherapy will intensify the deep therapeutic value of x-rays and of radium in the treatment of many inoperable tumors.

9. Monod summarizes the treatment of nephroptosis (movable kidney) as follows: (1) The use of belts which he describes, (2) free action of the bowels, (3) a diet consisting chiefly of meat, and (4) sodium bicarbonate.

13. Miller in a short paper urges practitioners to remember that not all cases of residual urine are caused by an enlarged prostate, and that many patients by proper training and persistent effort can be taught to empty their bladder and avoid a prostatectomy.

[J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 49. DECEMBER 9, 1913.

1. *EICKE, H. *The Gold Reaction in Cerebro-spinal Fluid.*
2. VEIL, W. H. *Benign Albuminuria.*
3. LUST, F. *The Misuse of Albumin Water in the Treatment of Acute Indigestion in Infants.*
4. HENER, C. A. *The Experimental Transmission of Tumors to the Eye.*

5. RÜBSAMEN, W. *Clinical-Experimental Studies on the Action of Synthetic Drugs for the Induction of Labor.*
6. *SIEGRIST, R. *Nervous Fever in Tabes Dorsalis.*
7. HOLZKNECHT, G. *A Modified Bucky Illuminator.*
8. HARTMANN, J. *The Sensitiveness of Peritoneal and Abdominal Fascia.*
9. HARTUNG, E. *The Avoidance of Danger from Emboli Following Injections of Paraffin.*
10. STERN, K. *The Removal of Tattoo Marks.*
11. PORT, K. *The Nerve Points of Cornelius in Relation to Swedish Massage.*
12. JESSEN, F. *A New Rib Forcep and a New Blunt Muscle Retractor.*
13. ZINSSER. *A Simple Artificial Nose.*
14. KREUTER. *Edwin E. Goldmann.*
15. FISCHER, A. *Suggestive Notes from the Annual Vital Statistics of the City of Berlin.*
16. NASSAUER, M. *The High School for Physicians and Patients.*

1. Eicke describes his technic for the precipitation of globulins in syphilitic cerebro-spinal fluids by colloidal gold, and gives his findings on 323 cases. The reaction is based on the fact that globulins, nucleoproteins and other albuminous cleavage products, important in causing the Wassermann reaction, are precipitated with colloidal gold at a fixed dilution above or below which precipitation does not occur. In other words, the proteins of syphilitic cerebro-spinal fluids are precipitated by gold in dilutions at which non-syphilitic fluids are not, and can be differentiated accordingly.

Eicke tabulates his results with the test as performed in the manner described. The findings paralleled the Wassermann reaction in general, but in a few cases were positive where the Wassermann was negative, although such patients developed later symptoms of syphilis of the nervous system. Eicke concludes that the gold reaction is extremely delicate and specific and affords an additional means for the early diagnosis of cerebro-spinal lues.

6. A few cases of tabes have been reported in which crises of fever occurred with or without accompanying crises of pain. No explanation has been offered for such symptoms. Siegrist adds a similar case to the literature. The patient was a tabetic who had periodic attacks of fever lasting from one to four days, with temperature reaching as high as 39°. These were accompanied by severe gastric crises or lancinating pains and passed off without treatment. Whether this symptom complex was produced by a stimulation of the heat regulating centres or by increased heat production of a nervous nature, or was due to resorption of toxines is purely speculative.

[R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 44. NOVEMBER 3, 1913.

1. OPPENHEIM, H., AND BORCHARDT, M. *Experiences in Operation for Tumors of the Cerebellum.*
2. AXHAUSEN. *Some Unusual Lesions of the Upper Third of the Femur.*
3. UHLENHUTH, P., AND MULZER, P. *Further Communication on the Results of Experimental Investigations in Syphilis.*
4. HEGLER, C., AND ST. VON PROWAZEK. *Researches in Typhus Fever.*
5. POSNER, C. *Casts and Cylindroids.*
6. LESSER, F. *The Detection of Iodine in the Urine.*
7. LINDEMANN, W. *A New Ecbolic, and the Synthesis of Ecbolics.*
8. LANGAARD, A. *The Action of Aleudrin.*
9. HASEBROCK, K. *The Phylogenetic Conception of Spastic Contractures.*
10. OBERMILLER. *The Effect of Arsenic and Salvarsan; an Addition to My Work on the Action of Salvarsan.*
11. *BERGER, H. *Magnesium Sulphate in the Treatment of Tetanus.*

11. Meltzer and Auer in 1905 first studied carefully the physiological effects of magnesium sulphate; and its anesthetic action, following subcutaneous, intradural and intravenous administration has led to its use in tetanus. It has no specific effect on the toxin, but prevents the convulsions to a great extent. All three of the above methods of injection have been used, with gratifying results. Kocher reports six cures in seven cases. Meltzer and Auer have used a 25% solution. Kocher says that this is too strong, and that 15% is better—or even 10%. The difficult point to decide is the dose—the author says the maximum dose of the 15% solution should be 2 c.c. to 10 kilograms of body weight. Intradural injection is very effective, but must be used with great care and the patient watched constantly, so that artificial respiration and stimulation may be begun at once in the event of paralysis of the respiratory centres. This method of treatment should not supplant the tetanus antitoxin, but the two may with care be used together. The question of repeated doses depends on the extent and severity of each individual case. Auer says that "cases of tetanus in the hospital should always have this magnesium treatment." [R. H. M.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 39. SEPTEMBER 25, 1913.

1. STICK, R. *The Present Status of Organ Transplantation.*
2. ARNETH. *Hot Baths in the Treatment of Bronchitis and Pneumonia in Infants and Children.*
3. KAFKA, V. *Value of Investigation of the Blood and Spinal Fluid in Nervous Disease.*
4. TRAUBE, J. *Narcosis and Similar Phenomena.*
5. HANSWIRTH, A. *Formaldehyde Fumigation without Apparatus.*
6. JANKOWSKI, J. *Resection of the Diaphragm.*
7. HERHOLD. *Lessons in Field Surgery from the Balkan War.*
8. DREYER, A. *Treatment of Induratio Penis Plastica.*
9. ENGEL, E. *The Treatment of the Toxemia of Pregnancy.*
10. KALLOS, J. *The Herrman-Perutz Syphilis Reaction.*

No. 40. OCTOBER 2, 1913.

1. KRAUS, F. *Pathology of the Thyroid, Parathyroid and Pituitary, and Their Interaction.*
2. v. BOKAY. *Local Treatment of Ulcers Following Intubation.*
3. *FRANK, E. *Diabetes.*
4. COHN, S. *Sodium and Calcium Metabolism in Diabetes.*
5. KOCHMANN, M. *Chloroform and Ether Narcosis.*
6. LONHARD. *The Treatment of Cardiac Failure in Pneumonia by Venesection and Epinephrin Injections.*
7. GUICHARD. *Differential Diagnosis of Echinococcus Cyst of the Lung.*
8. SCHÖNFELD, W. *Psoriasis a Constitutional Disease.*
9. GANS, O. *The Chemistry of the Cell and Nucleus.*

3. This article, from Minkowski's clinic, presents for consideration a new theory of the nature of diabetes. The present ideas on the subject, says the author, are like many others in medicine, worked out backwards from the results of therapy. In a brief consideration of the present theories, he points out the objections to each.

The organs which regulate carbohydrate metabolism are the nervous system and the pancreas. The latter

is the only organ partial or total extirpation of which will always cause glycosuria of varying degrees. Experimentally, Claude Bernard has shown that trauma to the nervous system may cause glycosuria, and clinically, diabetes often follows nervous strain. The glycosurias produced by adrenalin are regarded by the author as a special instance of the Langlay-Elliot law, which states that all organs supplied by the sympathetic react to adrenalin as to irritation of the sympathetic system. The thyroid and hypophysis he regards as of secondary importance in diabetes, producing their effect probably through their action on the sympathetic.

Frank believes that diabetes is to be regarded as a disturbance of glycogen metabolism, due to the effect on the liver of derangement of pancreatic function. In support of this theory he cites the fact that anastomosis of the pancreatic vein of a normal dog to the portal system of a depancreatised dog will cause a marked diminution in the glycosuria in the latter. It is probable, he believes, that in diabetes the lack of pancreatic hormone so disturbs the glycogen metabolism that the normal chemical phenomena can no longer occur, with resultant glycosuria and acidosis. [C. H. L.]

Correspondence.

THORIUM-X.

BOSTON, MASS., Jan. 5, 1914.

Mr. Editor: The statement that has appeared regularly in the daily papers indicating a monopoly of the Thorium-X supply in this country is not true.

The Auergesellschaft, Deutsche Gasglühlicht Aktiengesellschaft, 17 Rotherstr., Berlin, Germany, will supply it so that it can reach here 1,000,000 M.E. units strength.

For my own use in the treatment of cancer, I have an apparatus making 2,500,000 units a day and from my surplus I have been able to supply a sufficient amount for the treatment of a number of cases of rheumatism and anemias, including the pernicious type.

Yours truly,

FRANCIS D. DONOGHUE, M.D.

HERTER LECTURES.

The Herter Lectures of the University and Bellevue Hospital Medical College will be given during the week beginning January 12, 1914, at Carnegie Laboratory, 338 East 26th Street, New York City. Professor Sven Hedin will lecture on "Colloids and Their Relation to Biological Chemistry."

SOCIETY NOTICES.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—The New England Hospital Medical Society will hold its annual meeting Thursday, January 15, at the Hotel Lenox. Dr. S. Josephine Baker, Director of Child Hygiene Department of Health, New York City, will be the guest of honor, and will address the meeting after a buffet supper.

The business meeting will be at six o'clock, followed by a short reception to Dr. Baker, preceding the supper.

MARGARET L. NOYES, M.D., *Secretary.*

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Medical section meeting, John Ware Hall, Wednesday, January 21, 1914, at 8.15 P.M.. "Some Problems in Nephritis," Dr. Horace D. Arnold. Discussion by Dr. Henry A. Christian, Prof. Otto Folin and Dr. R. Fitz.

Light refreshments after the meeting.

EDWARD W. TAYLOR, M.D., *Chairman.*
LESLEY, H. SPOONER, M.D., *Secretary.*

NEW ENGLAND PEDIATRIC SOCIETY.—The twenty-ninth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, January 23, 1914, at 8.15 P.M.

The following papers will be read:

1. "A Case of Lymph Cyst of the Mesentery," Dr. Charles G. Mixter.
2. "The Influence of Alkalies on the Gastric Motility in Infants." Dr. Maynard Ladd.
3. "Infantile Scurvy," Dr. John Lovett Morse.
4. "The Etiology of Epilepsy," Dr. Arthur W. Fairbanks.

C. A. PRATT, M.D., *President*
FRITZ B. TALBOT, M.D., *Secretary.*

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, January 20, 1914, in the Amphitheatre of the Administration Building of the Harvard Medical School, at 8.15 o'clock.

Papers will be presented as follows:

Dr. F. H. Verhoeff: "Experimental Investigation of the Possible Therapeutic Value of Ultra Violet Light As a Germicidal Agent." (20 minutes.)

Dr. W. C. Quinby: "A Method for Crossed-circulation Experiments." (10 minutes.)

Mr. E. P. Lehman: "On the Rate of Absorption of Cholesterol." (10 minutes.)

Dr. E. G. Martin: "The Human Sensory Threshold During the Night." (10 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer,*
Harvard Medical School.

RECENT DEATHS.

DR. FREDERICK C. BUSCH, who died on Jan. 3 of vesical carcinoma and terminal pneumonia at Buffalo, N. Y., was born in 1873. He was assistant superintendent of the Gratwick Cancer Laboratory, and professor of physiology at the University of Buffalo.

DR. BENNO A. HOLLENBERG, of New York, died on January 1. He came to America from Germany in 1860, and, having taken up his residence in Huntsville, Ala., he served for most of the Civil War in the Confederate Army. He was graduated from the College of Physicians and Surgeons, Memphis, in 1885, and had practised in New York since 1893.

DR. JAMES A. H. CURTIS, who died last week in Paterson, N. J., was born at Brampton, Canada, in 1877. He was a graduate of Albert College, Ontario, and of Trinity University, Toronto. He served for two years as house surgeon at the Paterson General Hospital, and subsequently settled in the practise of his profession at that city. He was a member of the New Jersey State and Passaic County Medical Societies. He is survived by his widow and by one daughter.

DR. FRANZ REDER, who died on Dec. 28, at St. Louis, was born in Mellrichstadt, near Munich, Bavaria, on March 14, 1829. After studying at the Universities of Munich, Würzburg, and Heidelberg, he migrated to the United States in 1860. He is survived by two daughters and three sons, two of the latter being also physicians.

DR. ANDREW FLINT SHELDON, who died on Jan. 4 at Lyons, N. Y., was born in 1829. He served throughout the Civil War successively as assistant surgeon of the Seventh New York Cavalry and of the Seventy-eighth New York Infantry, and as executive staff-officer in the medical director's office at Washington, D. C. After the war he was brevetted lieutenant-colonel. He was an originator of the field hospital tent.

DR. GEORGE EPHRAIM FULLER, a retired Fellow of The Massachusetts Medical Society, died at his home in Monson, Mass., Dec. 23, 1913, aged 74 years. He was a native of Wilbraham. He left Amherst College in 1861 to enter the Army and served altogether four years and seven months in the cause of the Union. He had practised in Monson since 1868 and at the time of his death was president of the Monson National Bank. He died suddenly of heart disease.

Original Articles.

MORTALITY OF HEREDITARY SYPHILIS.

BY ABNER POST, M.D., BOSTON.

SYPHILIS is declared by writers on the subject to be simply murderous in its hereditary manifestations.

The distinguished syphilographer, Fournier, gives the statistics of 500 syphilitic families with whose history he is acquainted, as follows: In 223 families no transmission of the disease to offspring has taken place, in 277 families such transmission has taken place.

In these 500 families, 1127 pregnancies have occurred, 600 children are reported living and well; 527, or 46%, of the pregnancies have resulted unfortunately, as follows:

Abortions and still births	230
Early deaths	245
Living and syphilitic	38
Mentally deficient	14
	527

There is a tendency to disregard syphilis in this country. It is supposed to be a disease of older countries and rare in this; it is thought to be confined to those who go to seek it and to have no interest for those whose lives are blameless. If one accepts the death returns of the country as final, one may well say that the fatalities from syphilis are negligible.

It is the good fortune of the Boston Dispensary to have in the Dermatological Clinic a large number of syphilitic children, who furnish the material for this paper,—which concerns itself chiefly with those victims of hereditary syphilis who have survived the perils of infancy. Most of those who are considered have passed the earlier period of second dentition. They range from five or six to eighteen or twenty years of age.

If one looks at the vital statistics of Massachusetts, where these children have been seen, syphilis will be found notoriously absent, hardly more important in numbers than leprosy or typhus.

But it must be remembered that no one dares to assign syphilis as a cause of death. It would probably cost a doctor his popularity and ruin his practice if he dared to append that cause of death with the same simplicity that he would write typhoid or pneumonia. One must look elsewhere than at the official death returns to know anything about the fatality of syphilis.

From the children with hereditary syphilis who appear at the Boston Dispensary Clinic, it is our custom to learn all that we can in regard not merely to the patient, but also in regard to the family. This information is obtained usually from the mother or relative who brings the child. We have tried to learn the number of deaths in the family, with the alleged causes of death, and the condition of the survivors, and in regard to the patient, enough of the life history to know how far he or she falls short of the perfect child by reason of the syphilis.

It has not been possible to analyze all our material. It is only within a short time that our records have preserved material of this sort, and in regard to many families the records are of necessity quite vague. The mortality in 30 syphilitic families has been tabulated with the following results:

In these 30 families there have been 168 pregnancies; of these pregnancies there have been 53 still births and miscarriages, and 44 early deaths—a total of 97 lost, or 57%—71 remain alive.

57% of the pregnancies are dead.

38% of the children born alive are dead.

Out of the 168 pregnancies, of the 115 children brought living to the world, there remain alive 71; of these 71, 32 have been our patients, leaving only 39 presumably healthy. In the accompanying chart our patients are represented by a cross with a straight line beneath.

It is of interest and also of value to know what is the reason for this great mortality, or of what these children die.

Probably no other disease presents the same sad history as syphilis. No attempt is anywhere made, so far as I know, to classify the causes of stillbirth.

It has already been mentioned that syphilis appears infrequently in death returns as a cause of death. It becomes, then, a question of some importance to know how these deaths are reported, for certainly they must appear on the returns in some form. No one can for a moment believe that syphilis is the only cause of death in syphilitic families. Syphilitic children readily fall victims to intercurrent disease.

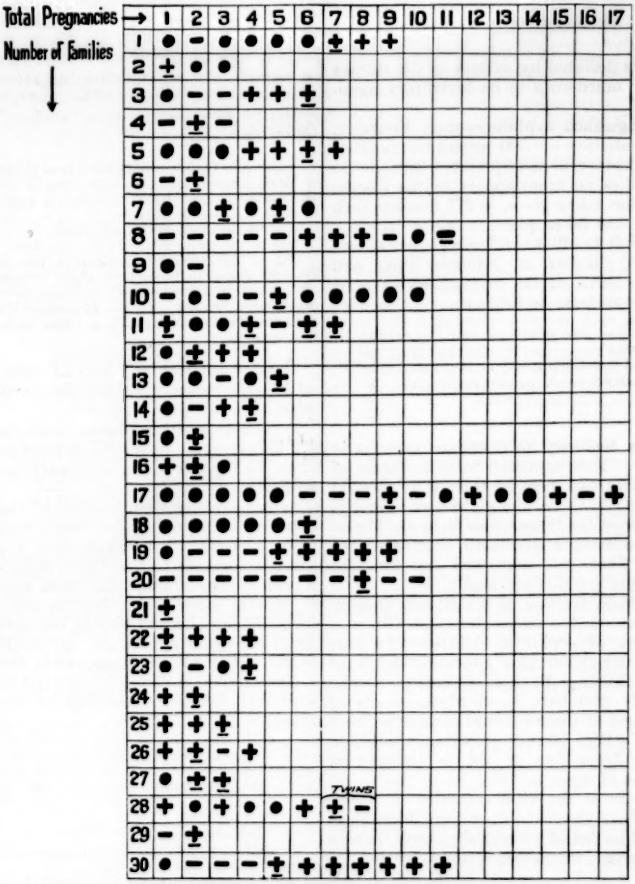
The attributed causes in 86 fatal cases in our syphilitic families, according to the mothers' accounts are as follows:

Congenital syphilis	2
Uncertain	4
Cholera infantum	25
Marasmus	27
Pneumonia	5
Hydrocephalus	5
Spinal meningitis	5
Scarlet fever	4
Chickenpox	2
Measles	2
Furunculosis	1
Diphtheria	1
Gastritis	1
Bronchitis	1
Accidental death	1

Of these causes, 25 cases of cholera infantum may, perhaps, be regarded as cases in which another disease is superimposed on a syphilitic basis, though it may be that the death could just as well have been attributed to syphilis as to cholera infantum.

Twenty-seven cases of marasmus is a striking number. Wasting is a symptom not at all un-

MORTALITY OF HEREDITARY SYPHILIS



Total Pregnancies in 30 Families ___ 168

Miscarriages and Still Births 53

Early Deaths 44

97

Living Children ___ 71 168

Patients ___ 38

Supposedly well 38 71

KEY + *Living Children*

● *Miscarriages and Still Births*

− *Early Deaths*

± *The Patient*

common in inherited syphilis and it cannot be far wrong to say that the symptom of marasmus is utilized to cloak the underlying disease.[1]

In regard to the five cases of pneumonia, it must be said that a form of pneumonia is found in syphilitic children. It is syphilitic in character but it may very well be used as cause of death either from failure to recognize the underlying syphilis or purposely to hide it.

Hydrocephalus is caused by syphilis as well as by other diseases, and we are justified in believing that hydrocephalus occurring in syphilitic families is of syphilitic origin.

The diagnosis of spinal meningitis may be regarded with suspicion in this connection.

It is pretty certain that the returns for marasmus, pneumonia, hydrocephalus are falsified by reporting as such some deaths which might more properly be returned as syphilitic. How far the returns of cholera infantum are vitiated, if at all, nobody can tell. No one can for a moment believe that syphilis is the only cause of death in syphilitic families. It must be recognized that the vital resistance of these children is greatly reduced by their heredity and they readily fall victims to intercurrent disease.

Among the families introduced to our notice, but not registered in this table, are several where the disease has entered the family after the birth of one or more healthy, that is, non-syphilitic children. The contrast in mortality in these families between the earlier healthy and the later syphilitic children is very striking and seems to emphasize the fatalities due to syphilis. The earlier children show only normal death-rate, while the later show the abnormal death-rate of syphilis.

Occasionally it happens that the first child survives with signs of hereditary syphilis, while the following pregnancies end fatally. These are families in which the husband is syphilitic at the time of marriage, but not in a condition to inoculate his wife. The first child is the product of a syphilitic father and a healthy mother, and its chances of surviving are better than that of the children who immediately follow after the mother has passed through the first pregnancy and become herself syphilitic.

These 30 families were introduced to us by children who came as patients for their own bodily ills. So far we have considered the families from which they have sprung. The patients deserve our study for their own sake. They are the survivors of the numerous fatalities. Each one suffers from the inherited disease in such a way as to make him seek for medical aid, and no two are alike. Heredo-syphilitic children present an almost endless variety of symptoms, in an endless variety of groups.

[1] This note is taken from the Physicians' Pocket Reference to the International List of Causes of Death issued by the Census Bureau. "Marasmus." This term covers a multitude of worthless returns, many of which could be made definite and useful by giving the name of the diseases causing the marasmus or wasting. It has been dropped from the English Nomenclature since 1885. ("Marasmus, term no longer used.") The Bellevue Hospital Nomenclature also omits the term.

In the first place, the heredo-syphilitic child is unfinished. It is less in size and weight than normal. It is three or four years behind the normal children of its age. This incomplete, unfinished condition may be evident in the child as a whole or in any part of it. To the condition as a whole is applied the term infantilism.

The internal organs are abnormal in the same way. As these children come to us, they show their hereditary deficiencies in various degrees and also the stigmata of infantile disease. At the same time with this deficient development, there occur in some an increase in bony structure, the deposit of new bone in some circumscribed spot. Its forehead may be increased in size in various parts so that it has a projecting and abnormally large forehead. Some of the long bones have bosses or circumscribed swellings.

Of the children seen during the last year, by far the greater number were suffering from partial blindness, temporary in most of them. The number of cases of eye disease in this particular group was abnormally large because they had come primarily from an eye clinic. One of them was at the Blind Asylum, one at the Kindergarten for the Blind. All of them were unable to attend school for months at a time. One of them came from the Horace Mann School for the Deaf and Dumb.

Several are deaf, one or two completely or nearly so to ordinary conversation. Many have had operations for the removal of tonsils and adenoids. There is room for the suspicion that some of the operations, and especially the repeated operations for adenoids, done on syphilitic children, are unnecessary. The narrow nasal passages and the swollen mucous membranes of the syphilitic child occasion the same symptoms as adenoids, and the first treatment should be for the syphilis, and only when that is found unsatisfactory, the operations for adenoids.

Many children in this number are mentally deficient to a much less marked degree. Most of them are backward in school because of their various physical defects. It is by no means an easy task for a clinician to know exactly how to classify the mental condition of these children. We hope to have them studied at some future time by expert teachers.

Active processes of the disease may be still going on in various parts of the body, nose, throat, legs, eyes, ears, lymphatic glands, bones as well as internal organs,—heart, lungs, nerves and other organs. For each one of these troubles the child has ordinarily sought relief in the clinic devoted to the special organ affected. Without knowledge of the other affections or the child's history, it is often extremely difficult in these various clinics to recognize the underlying taint which is the real cause of the trouble. At these various clinics these children are treated for their various ailments, but when all has been done for their eyes or ears or throats

that can be done in the special clinics, they are discharged, very properly, but the child still needs treatment for its constitutional condition, which it does not always receive. The children, as we see them, have usually a history of visits to many clinics, where, for a time, they have been the object of care, but with the advent of new symptoms they betake themselves to some new clinic and to new physicians.

A few detailed histories will be worth any amount of description. (See accompanying chart.)

J. C. No. 1, is the result of the seventh pregnancy. The first was born dead; the second lived eight months; 3, 4, 5, and 6 were born dead. John, the seventh, is 12 years old. The eighth and ninth are also living. John, our patient, has been put back in school a good deal because of sickness; has had two operations for adenoids; has glands on the neck said to be tuberculous, but probably due to decayed teeth. He applied at the Eye and Ear Infirmary for interstitial keratitis believed to be syphilitic. He has characteristic syphilitic teeth and slight deafness. He is said to be without ambition and would like to sleep most of the time.

M. S. No. 12 on the chart, was referred to us from the Eye and Ear Infirmary for our co-operation. She is the oldest child of four, only one has been lost. Mary was a seven-months' baby. For a long time had no finger or toe nails. At one year, had pneumonia; at two, nasal obstruction. No teeth until four years old. Did not walk until 3½. Six months ago had severe pain in right leg. Is behind in school. Mother volunteers that Mary is not very bright.

In addition to interstitial keratitis, Mary has scars about mouth and nose believed to be due to syphilitic lesions in infancy. Characteristic syphilitic teeth. The pain in her leg was due to syphilitic periostitis, which is easily recognizable and which kept her awake the night before her visit to the Dispensary.

These surviving children are well worthy of recognition by those interested in diminishing infant mortality, for they furnish the explanation of the death-rate in their families which otherwise might not be recognized. Some of the survivors live to become fathers and mothers themselves. How far they are able to transmit the disease to their own offspring is uncertain, but certainly many of them are unfit to become parents whether they actually transmit syphilis or not. From their undeveloped brains and bodies one cannot expect a very high class of citizens.

They are but examples from a large attendance at the clinic. The seriousness of the group, as it concerns the general welfare, depends largely upon the total amount of syphilis in the community. There is no census of syphilitics nor is one possible at present, but there have been attempts made to approximately learn the amount of the disease in the country. The figures fall between 15 and 20%. It is, then, from its numbers, of no inconsiderable importance, but the failure to rightly report syphilis means an addition in the report of something else. It falsifies the returns.

It would not be just to leave this subject without drawing attention to the fact that the transmission of syphilis to children is not universal. Many children of syphilitic parents are born without any taint of the disease. In the table quoted from Fournier at the beginning of this paper, it was stated that of 1127 pregnancies in 500 syphilitic families, 600 children were reported as living and well. In addition, it must be noted that time and treatment have great effect in mitigating the evil. One patient at the Boston Dispensary, a man of perhaps fifty, himself the victim of late lesions of syphilis, gave a history of his family as follows: the first child was stillborn, the second died in infancy, the third is living and the fourth is a young man in the United States Navy—a position which presupposes good health, both in mind and body.

And, now, this paper would be incomplete without a word as to the study of the disease as a whole. It is usually spoken of as a venereal disease and syphilis and gonorrhea are classed together. These two diseases are entirely separate and distinct. They owe their existence to two entirely different microscopic organisms which have no relation to each other. They need to be studied as distinct diseases and not as evidences of immorality. The physician must do his share in their prevention and control quite as much as the moralist. Syphilis is an infectious disease—conveyed by the most innocent kiss or even careless handling. No one can for an instant think of calling the children referred to in this paper sinners. Probably at least half of the syphilis in the world is innocently acquired and even the sinners are our brethren.

The desire to attach disgrace to all victims of the disease leads to concealment and difficulty in study. If we are in any way to control the disease, it is necessary to have a moderately accurate knowledge of it. The more we know of syphilis, the more formidable do its possibilities appear. The many fatalities and the possible diseases which may affect the survivors, as well as the good that may be done by supervision and medical care, not only in the way of prevention but in the amelioration and possible cure of the afflicted, it is the object of this paper to point out.

MASSACHUSETTS ANTI-TUBERCULOSIS LEAGUE.—Under the auspices of the Boston Association for the Relief and Control of Tuberculosis a meeting was recently held to organize the various tuberculosis societies of this State, now thirty-five in number, into a single central body, to be known as the Massachusetts Anti-Tuberculosis League.

A CASE OF MYATONIA CONGENITA (OPPENHEIM).

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AND

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ALTHOUGH thirteen years have elapsed since the clinical manifestations of this extraordinary disease were first described, the total number of cases on record to date is not large; consequently, we feel that this contribution may be offered without apology.

The patient is a boy of five and a half years, of healthy parents, both of whom sprang from sturdy New England stock. During the pregnancy, which terminated in an instrumental delivery at the seventh month, the child's mother felt what she assumed to be normal fetal movements. Her health was good all the while except for rather persistent and troublesome pains which she attributed to rheumatism. The birth of the patient ended the first pregnancy, and he is the only child. There have been no miscarriages.

The weight at birth was less than three pounds, and the child's head, although well-shaped, was markedly large in proportion to the body. Also, it was noticed that from the moment of birth the head tended to fall backward on the shoulders and that the neck muscles were "like jelly."

The child nursed after the first three or four days, but lay for months in a stereotyped position which strongly suggests the fetal, *i.e.* with arms folded and the feet so intertwined that the plantar surface of each was in apposition with the opposite tibia. At the outset the muscles generally are said to have been flabby in the extreme, but the disability of the lower extremities was greater than that of the upper and the proximal portion of the limbs was more affected than the distal. If an arm got extended and abducted the child could not voluntarity flex and adduct it, and vice versa. There was no apparent disturbance of intellect or special senses, the breathing was never hampered in any way and the bowel and bladder emptied themselves in normal fashion. Teething did not begin until the eighteenth month, but then progressed rapidly. Prior to this time the child could say "papa, mama," and a few other words.

The case was first seen by one of us in July, 1911. At that time the child's habit was to lie upon the belly. It could neither sit nor hold the head erect. When it was placed in the sitting position and supported under the arms, the spine showed a very marked kyphoscoliosis and the head fell backward and to the right. There was more or less constant drooling; nevertheless, the intellect was in nowise below par and the patient showed the usual quota of cunning traits peculiar to children at that age. The speech was somewhat difficult of comprehension, but the vocabulary was normal. The head was noticeably large but well proportioned, the fontanelles were closed, the eyes clear and alert, the facial expression mobile. The pupils were equal, regular in outline and prompt in their response to light and distance. The facial and ocular muscles, tongue and soft palate were normal, likewise deglutition. The tracery of the temporal veins in the somewhat pallid skin was rather striking. The respiratory movement was not restricted; the heart area and sounds were normal, the pulse in no way remarkable. All the tendon reflexes were absolutely unobtainable. The epigastric, belly, cremasteric and plantar reflexes were present but sluggish, in fact, cutaneous sensibility in general seemed rather below normal. There was no rosary and no epiphyseal enlargements.

The most striking feature of the case was the motor impotency of the child and the muscular conditions which underlay it. Everywhere the muscle-bellies seemed thin and flat, but, nevertheless, did not for a moment give the impression of a true atrophy of spinal or neuritic origin. The thinness was most marked throughout the right half of the neck posteriorly and the right side of the back. This accounted for the falling of the head backward and to the right and for the kyphoscoliosis respectively.

Very striking was the poverty of muscle-fibre—and we may add subcutaneous fat—in the arms. The chest and belly muscles seemed fairly adequate. Those of the thigh and leg were even more normal in contour and consistency than the last named, but utterly incapable of contracting voluntarily with any degree of vigor. It is to be regretted that no neuro-muscular electrical tests were made at this time.

The patient was ordered five grains of calcium lactate suspended in milk three times daily, and directly following the visit was taken to the seashore where it had the advantage of out-door life and sea-bathing. The progress made was most satisfactory. At the end of six weeks the child could sit up alone, although the head still fell backward and to the right and the kyphoscoliosis was extreme. At this time, also, the knee- and ankle-jerks were present and the cutaneous reflexes fairly prompt.

During the winter of 1912 codliver oil was steadily given and the dietary and hygienic conditions carefuly attended to. The acquisition of muscular strength was constant. Before the end of the winter the child could sit in a chair and cross his legs and, by holding on to his mother's hand, could take a few steps. He gained noticeably in weight and drooled only when very tired.

In March, 1913, the patient developed chicken-pox which was followed by diphtheria. He was ill five weeks and lost ground considerably in consequence, but fortunately escaped a post-diphtheritic paralysis. After this illness he was taken to the sea-shore where he gained to such an extent that in September he could use his hands fairly well, walk about the room unassisted and make his way over the stairs.

At the present time, last of October, 1913, the boy is well-nourished and has good color. He is bright and alert mentally and his articulation is fairly clear. He drools only when very tired. Height 42¾ in., weight 38½ pounds. The head, which still tends to fall backward and to the right, shows the following measurements: circumference 53 cm., ear to ear over sinciput 34 cm., glabella to inion 33 cm. The gait is extraordinary and difficult to describe. Before starting to cross a room the boy stands in an attitude which suggests that of a sprinter on his mark. One arm is thrust directly in front of him, the other behind. The gait is a mixture of ataxia and steppage and, withal, there is in it a suggestion of the peculiar vibratile quality observed in that of multiple sclerosis. The head waggles concomitantly. Once started the patient seems unable to stop until

some obstacle is encountered. Station in the Romberg position is impossible; with the eyes open and the feet apart there is no special swaying, but the knees are markedly hyperextended and the right foot pronated. The pupils are middle-wide, equal, regular in outline and normal to tests of light and distance. The facial and ocular muscles, tongue and soft palate are normal. Fundi healthy. The heart and lungs are normal. Chest circumference 52 cm. The spine shows a lesser degree of kyphoscoliosis. It is the child's wont to keep the fingers flexed in the palm with the thumb underneath, but there is absolutely no spasm or contracture. The finer coördinative movements of fingers and hands are quite impossible. For example, the boy cannot deftly pick up even the plug of a small Faradic battery and insert it in its orifice. In the attempt to perform the latter part of this feat the hand gyrates about the orifice in circles of varying circumference, but the goal is never attained. Meantime the head waggles concomitantly, precisely as it does when walking is attempted. Nevertheless, with solid foods the patient feeds himself fairly well. The musculature of body and limbs has developed fairly satisfactorily both in volume and strength, but the local disproportions noted above are still in evidence. Curiously enough, neuro-muscular response to even mild Faradic stimulation is everywhere equally prompt. The deep and superficial reflexes are all normal.

It requires no special diagnostic acumen to differentiate a typical case of myatonia congenita, like the above, from other conditions which, in a limited number of features, resemble it. The peculiar character of the muscle defect, the fact that this defect is present in its maximum intensity at or shortly after birth, and the further fact that the morbid process is regressive all combine to distinguish this process from whatever underlies all other myopathies and spinal atrophies, and to place upon its symptom-complex the cachet of a genuine clinical entity.

It will be remembered that Oppenheim[1], entirely without the support of pathologic data, believed, at the time he first described the disease in question, that an incomplete genesis of the muscular system was the essential underlying morbid factor, although he did not absolve the anterior horn cells from all connection with this retardation of muscular development. As a matter of fact, actual pathologic investigations, although few in number, seem, in the main, to bear out the Oppenheim theory. We shall refer, however, without prejudice, only to the article of Archangelsky[2] and Abrikosoff, because their case seems to us clinically typical and, at the same time, we are strongly impressed by the completeness and apparent exactitude of their pathologic findings.

These observers report the case of a female infant who came under the observation of one of them (Archangelsky) at the age of three and one-half months. The child's parents were disturbed by its slow gain in weight (only one pound in three months) and its inability to move the limbs. The child looked anemic; the nutritional state was satisfactory (!); the vertebral column of normal configuration. The thorax was deformed to a marked degree—the sternum protruded sharply, and the chest walls were so sunken that on inspiration the middle portions of the ribs of one side appeared to rub against those of the other. The borders of the lowest ribs were prominent. There was no rosary. The belly was big and flabby, and in contrast to the narrow thorax appeared really enormous. The respiration was clearly diaphragmatic. On inspiration the belly increased in size to a marked degree. The respirations were seventy to the minute and were associated with strong retractions in the region of the insertion-points of the diaphragm.

The most striking feature of the case was the almost absolute immobility of the child. When taken from its bed and placed upon a pillow it assumed a whining expression, while the entire body, extremities and head remained entirely motionless.

The characteristic position of the child was that of a person crucified. The legs were extended, the arms abducted and somewhat flexed at the elbows, the hands resting upon their ulnar borders, with the little fingers bent in such a way that they almost came in contact with the outer side of the corresponding fifth metacarpal bones.

With the child raised in the vertical position the head fell limply and indifferently either forward or backward. Passive motion of the limbs could be carried to almost any extent without apparent pain. Voluntary contraction was limited to one or two muscles and was feeble and restricted in extent. For example, sharp pricking of hands and feet caused but slight movement of the distal portion of these extremities. The child seemed alert to what was going on about it and the excursion of the eyeballs was not limited. The pupils were equal and prompt to light. There was no nystagmus, and the muscles of the face, tongue, soft palate and pharynx were normal. The hearing seemed undisturbed, and the voice was clear but weak. Internal organs healthy. The tendon reflexes were entirely absent, likewise the plantar. The exact status of general sensibility was difficult to determine. While the other muscles were scarcely palpable; both biceps felt like thin, somewhat tense, strings.

The family history was negative, and the child's mother stated that the pregnancy was normal, although throughout the entire second half of it fetal movements were but feebly felt. The birth itself took place at the regular time and was normal in every way. No instruments were used. The weight of the apparently normally-developed newborn was 8½ pounds (3½ kg.). Its exact condition during the first month of life was difficult to determine, although the concensus of opinion of those concerned with its care was to the effect that during this period not even the slight movements of the fingers observed in the second month were present. At the beginning of the second month an electrical examination disclosed a complete lack of response of the muscles everywhere on neck, trunk, and extremities to even a very strong Faradic current.

Toward the end of the third month of life the child began to lose rapidly in weight and the loss continued up to the time of its death, which came suddenly, about the middle of the fourth month, from acute pneumonia. Archangelsky was astonished to observe that in spite of the marked and progressive loss of weight, voluntary motion steadily increased. Only the week before its death the child, lying supine, could move its head sidewards to some extent, and could, when supported in a vertical posi-

tion, maintain the head erect for several moments. It was also able to raise the hands to the mouth and, with the knees bent, to abduct and adduct the thighs.

The necropsy, made sixteen hours after death, may well serve as a model for all future investigators. Not an organ, not a shred of tissue that might throw a ray of light on the pathology of myatonia congenita was neglected. Macroscopically this searching investigation revealed only the following abnormalities: (1) Varying degrees of hindered development, pallor and flabbiness of all the voluntary muscles; (2) Pial edema throughout brain and cord (3) Moderate venous engorgement and edema throughout the tissues of cerebrum, cerebellum and cord; (4) Unusual thinness of ventral roots throughout the cord, but most marked in the lumbar region; (5) Catarrhal broncho-pneumonia and (6) Ovarian cysts of varying sizes. The anterior fontanelle was wide open, and all signs of rachitis were lacking.

The detailed description of the microscopical examination is too long to reproduce in its entirety. From the side of the nervous system the findings were, briefly, as follows: (1) A persistance of the remains of the peripheral granular layer of the cerebellum. Incidentally, this may be regarded, in part, as an individual peculiarity not infrequently encountered at the age in question; (2) An incomplete myelinization of the pyramidal tracts and Gower's bundle—both structures in which the fibres are not ordinarily fully myelinized until after birth; (3) Absence of the normal nerve-cell grouping in the posterior horns (absence of Clarke's column), with presence in these parts of numerous small multipolar cells; (4) In the lateral horns substitution of many small multipolar cells for the usual large cells; (5) In the anterior horns marked reduction in the number of nerve-cells, with entire absence of large ganglion cells and presence of a few scattered small multipolar cells. Here all nerve-cells appear small, as shown by diminished size of cell-bodies, nuclei and nucleoli. No signs of degenerative changes. The number of nerve-fibres in the gray matter is reduced and the majority of them lack myelin sheaths: (6) In the lateral anterior roots numerous amyelinized axis-cylinders and empty neurilemmata, together with cylinders which are myelinized but thinner than normal; (7) In the median anterior roots nearly complete absence of myelinized fibres, with a peculiar swelling of the amyelinized; (8) In the peripheral nerves a combination of myelinized and amyelinized fibres, with empty neurilemmata. No actual degenerative changes.

In the muscular system the following findings are recorded: "All the voluntary muscles, with the exception of the diaphragmatic, facial, pharyngeal and laryngeal, are very slender in consequence of the extremely marked thinness of the majority of the within-retained muscle-fibres; there are no signs of gradual muscle atrophy, no proliferation of nuclei, interstitial connective or fat tissues."

As Archangelsky and Abrikosoff view the problem, the question to be resolved, as far as the nervous system is concerned, is whether we are dealing with absent or impaired development of the gray substance of the cord, anterior roots and peripheral nerves or with an actual degenerative process in the same. For these authors the absence of the normal nerve-cell grouping of the gray substance, the complete absence of Clarke's columns, the great number of cells in the substantia Rolandii (suggesting embryonal conditions), further, the presence of very numerous multipolar nerve-cells irregularly distributed in the gray substance of the lateral and posterior horns—all may indicate an interference with the normal distribution and growth of the nerve-cells. On the other hand they point out the fact that the primary development of the ganglion cells of the anterior horns begins very early (before the fourth embryonal week) and hesitate to explain the absence of these cells on the ground of hindered development, because it seems to them highly probable that the hindering process would also exert a deleterious influence upon the development of the horns themselves. They recognize, moreover, the existence of atrophic processes in nerve-cells characterized by diminution in size or even by complete disappearance, without grave change in their structure. This fact complicates the solution of the problem, even though not all the changes found can be attributed to such an atrophic process.

The character of the changes in the nerve-fibres in the gray substance is regarded as of no importance in the solution of the pathologic problem, since these changes could equally well come either from hindered development or from atrophy of the nerve-cells.

Of far greater importance to the above-mentioned authors is the character of the changes in the anterior roots and the peripheral nerves. They note that in spite of the small content of myelinated fibres and of axis-cylinders deprived of their sheaths (lateral groups) and, further, in spite of the almost complete absence of the same (median groups), the mass of roots in its entirety does not seem to be correspondingly diminished but, to a certain degree, retains its normal area. They note, furthermore, that on cross sections of the roots a mesh-like structure is apparent, whose lumina and the arrangement thereof point absolutely to absent nerve fibres. And from this circumstance they conclude that, beyond all doubt, at least a part of the nerve-fibres of the anterior roots have undergone some sort of degenerative process and disappeared, leaving behind only empty nerve-sheaths.

From the above pathologic data Archangelsky and Abrikosoff conclude, finally, that two kinds of changes are present in the spinal cord; 1. A hindered development of its gray substance—as shown by the lessened dimensions of the cells of the lateral and posterior horns, the interference with the customary grouping-process of these cells, the thinness of the myelinized fibres and the axis-cylinders of the anterior roots, the absence of myelinization of the majority of the nerve-fibres of the gray substance, anterior roots and peripheral nerves and the embryonal appearance of the substantia Rolandii. 2. Degenerative changes of the cells (simple atrophy)—as shown by the failure, for the most part, of the cells of the anterior horns and

the disappearance of a portion of the nerve-fibres in the anterior roots and peripheral nerves (empty neurilemmata).

The changes in the muscular system are unhesitatingly ascribed by Archangelsky and Abrikosoff to hindered development (hypoplasia) of the muscle-tissue, as evidenced by the uniform thinness of the muscle-fibres—with complete preservation of their structure—and the absence of nuclear proliferation and increase of interstitial tissue.

A point much more difficult for these authors to make clear to their entire satisfaction is the connection between the hindered muscle development and the changes in the spinal cord. They finally conclude, however, that the paralysis and atony of the musculature spring from hindered development of all peripheral motor neurons, but chiefly from a hindered development of the muscle-tissue, which is contemporaneous with that of the cord. The disappearance of the feebly developed anterior horn ganglion cells they regard as secondary and as a result of the consecutive atrophy of these cells.

To the present writers the term—myatonia congenita—seems satisfactory from a clinical standpoint, for the reason that the muscular atony which characterizes it does certainly dominate the picture. On the other hand, the pathology ascribed to it by Oppenheim and subsequent observers impresses us as too narrow in conception.

Its exact pathogenesis must, for the present at least, remain shrouded in obscurity. We venture to suggest, however, a probable correspondence between its pathogenetic factors and those which act upon the primary embryonal tissues in such a way as to bring about spina bifida or hare-lip. Just how early in fetal life the developmental activities are arrested we do not pretend to say. Archangelsky and Abrikosoff, in their case, found muscle-fibres morphologically and structurally identical with those ordinarily observed in the third or fourth fetal month, while our own case has, so far as we know, the distinction of being the first to exhibit the typical picture of the disease at the end of the seventh.

Our reasons for considering the reigning pathologic conception of the disease too narrow are, in part, derived from the microscopic studies of others and, for the rest, from personal clinical observation. In our case, for example, the impaired articulation and the drooling show that the brain-stem, as well as the cord and peripheral nerves, is involved. Furthermore, the marked disturbance of equilibrium observed by us makes it clear that inhibition of sensory neuronal development is also to be reckoned with. This fact alone proves that the theory of hindered development of peripheral motor neurones and muscle-tissue does not cover the whole pathology of the disease. We feel that it may be that the impaired equilibration is due to the absence of Clarke's columns, and we would urge future investigators to keep this interesting point prominently in mind.

As to prognosis, the reported cases show that the mortality is rather high—about 30%—and that pneumonia is the commonest cause of death. Our case may be classed among the most favorable, but even here complete restitutio ad integram seems to us out of the question, when we consider that the pathology embraces atrophy and disappearance of anterior horn cells and peripheral nerves.

Treatment consists, in the main, in the administration of tonics—we found codliver oil and calcium lactate most serviceable—massage and electricity. Among other important therapeutic measures, warm sea-bathing, generous diet, open-air life and simple coordinative exercises should be mentioned. On general principles, artificial support of the atonic muscles by apparatus should be avoided.

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THE SUSPICION OF MALIGNANCY.*

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NEXT to hemorrhage there is probably no abnormal phenomenon which is to the patient himself more disquieting than the appearance of a tumor. Even with a brave though foolish attempt to disregard the unwelcome presence, and by ignoring to drive it away, there is still the almost subconscious dread that after all we may be facing that ominous, that malignant thing which we know and fear as cancer.

What comes next will depend upon the temperament of the patient; and the human soul is ever individual and never duplicate.

In general, people may be classified as timid or courageous. Yet when confronted with this dreadful spectre of malignancy it is not always the coward who shrinks from the scalpel nor the brave man who seeks the prompt aid of the surgeon. Indeed, the timid are often the first in very panic to seek operative relief, while I have known at least one noble-spirited man, who, with the full understanding of what delay would mean, put off for a year the operation which might have saved him, so that his wife, herself the victim of fatal cancer, should be spared the knowledge of her husband's peril.

The average individual, alarmed at discovering a tumor, will lose little time in consulting his doctor; and often enough his future will hang upon the tactful and conscientious quali-

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ties of this first adviser. And the task of the physician here is no easy one. Should the case prove at a glance to be free from suspicion, his words will bring comfort and gratitude, the good news in some way reflecting upon the physician just as if he were in a manner responsible. But when warning of possible evil must be given then indeed is demanded the utmost delicacy in the management and direction of that complex and contrary force, the mind of man. Too often it is proved that "The bearer of ill news hath but a losing office," and the well-meant efforts of the honest practitioner are repaid with charges of brutality or, even worse, commercialism. Possibly ths patient will seek another and more favorable opinion at the establishment of some one whose code of ethics will not forbid his keeping the sufferer in a fool's paradise until the opportunity for cure is past. The temptation to temporize is therefore great, and when there is nothing more than the mere suspicion of malignancy it is easy to give a placebo and to request the patient to return in a week or in a month, so as to lessen the psychic shock. But that patient may gradually become, as it were, accustomed to his disease, strange as it may seem, and his suspicion having been partly lulled, his second visit may be put off until certainty has taken its place—and with that certainty of diagnosis comes the greater doubt of cure.

But suppose a case is one of those obscure ones in which the diagnosis can be hoped for only after repeated careful examinations. Here, instead of making a tentative diagnosis, the patient should be told frankly that further observation will be required and that he must have patience.

There is perhaps no greater mark of the scientific clinician than the method and completeness of the physical examination. And nothing so educates the physician as the oft repeated and careful inspection, palpation, auscultation, percussion, with the noting of change in the progress or retrogression of the disease.

You have all heard this over and over again — yet how often are the more troublesome examinations put off until the appearance of some danger signal which cannot be disregarded.

Take, for example, that most frequently neglected procedure, the digital examination of the rectum. There is hardly a surgeon who has not had thrust upon him the sad duty of announcing the presence of inoperable rectal cancer, and all because in a case of obscure diarrhea no one made this simple exploration until it was too late. And yet, in any irregularity of the bowels, rectal palpation should be one of the first diagnostic steps instead of the last, the proctoscope supplementing the negative finding of the finger. And the youth of the patient is by no means a scientific reason for ruling out malignancy in this region.

Within the past year I have seen in my practice two fatal cases of inoperable rectal carcinoma in young women under twenty years of age! And these patients could almost certainly have been saved had the disease been earlier recognized, for the cancers of the rectum are of comparatively low malignancy.

The discovery of one morbid condition which ever so completely explains the symptoms of a disease does not mean that we are to neglect further inquiry. This appears to be self-evident, yet the following case will demonstrate how easily one may err.

CASE. A young man about 35 years old came to me with a painful nodular and movable mass the size of a small adult fist, in the right mid-abdomen. There had been deterioration in health for some months, but there were no symptoms referable to disorder of the digestive tract. The growth seemed one which could be easily removed and I referred him to my service in Mt. Sinai Hospital. Simply as a matter of routine, the gloved finger was inserted into the rectum, when at once a non-obstructing though obviously malignant tumor of great size and totally inoperable was discovered, the abdominal mass being evidently secondary.

The presence of hemorrhoids does not signify that the rectum higher up is healthy, yet I have seen—we all have seen—patients who have been actually operated upon for the cure of hemorrhoids when the cause of their distress was a rectal carcinoma, perhaps not at the time of operation within finger reach.

A woman with rectal hemorrhages from a papillomatous colitis, which later necessitated a complete colectomy, had been operated upon for hemorrhoids, which in truth may have been present, and the actual source of the bleeding was not discovered until it became evident that no relief had followed the clamp and cautery.

In disease of the urinary system the matter of thorough and what may be termed "special" examination is of great moment. In a case of sudden hematuria in an individual of middle age the suspicion of malignancy is to be confirmed or eliminated, not as a last but as a first step.

I will assume that most practitioners are able to do their own ordinary microscopy. Also, that they know how to employ the two-glass test, and by catheterization and lavage to decide whether the probable bleeding is from the kidney, the bladder or the urethra—in the male or the female.

A more accurate diagnosis may not be possible, however, without what are called "special" examinations—with the aid of the cystoscope, the x-ray, the ureter catheter. And here permit me to mention a point which I have emphasized on other occasions. The x-ray should take precedence of what may be called the operative procedures of cystoscopy and ureteral catheterization because it is less liable to do harm. In the male, and the aged male in particular, the mere passing of an instrument for the first time may have consequences of a serious

nature due to traumatism and infection—possibilities which can never be absolutely ignored. I have seen dangerous hemorrhage follow cystoscopy in a man with prostatic disease and so-called "hemorrhoids of the bladder," while fatal "catheter chill" is not unknown even in these days of improved urinary antisepsis. If unfortunately the x-ray examination must be repeated, at any rate we shall have avoided one unnecessary cystoscopy. But in any case, these examinations should be made as soon as possible after the suspicious hemorrhage and there must be no placebo or "expectant treatment." If there is indeed a carcinoma, temporary drug relief from symptoms will be the worst thing that could happen, for it will quiet the patient and meantime permit further development of the tumor.

As every progressive practitioner knows, a patient in whom cancer is even dimly suspected should be seen by a surgeon. There can be little loss of prestige and there will surely be great relief of mind on the part of the physician, if even thus early, he will divide his responsibility. Perhaps too often he shares the feeling of his patient that the surgeon's motto is "When in doubt, operate"; yet this motto is on the whole a very safe one when dealing with cancer—always provided that no legitimate means of diagnosis has been omitted.

But the experienced surgeon appreciates the actual risk probably better than any one else, for upon him falls heaviest the blame for an untoward result. And the punishment for failure is far greater in proportion than any reward of success, for when the surgeon unfortunately loses his patient he too often loses the confidence of what may be called the entire "Circle" about that patient and also the physician who referred the case. And a so-called operative recovery with the disease unrelieved is like the mistake of an architect—always in evidence as a reproach to his poor judgment or lack of skill.

In advanced cancer particularly, the mature surgeon has learned to shun operative pyrotechnics, preferring always to relieve the distress rather than to risk all in a desperate attempt at radical cure.

Take, for example, the operative treatment for cancer which closes up the pyloric end or outlet of the stomach. The work naturally divides itself into two portions. First, the formation of a new opening between stomach and intestines—the gastro-enterostomy—which short circuits the diseased parts, permitting the food to pass unobstructed into the intestines, and second, the extirpation of the cancerous part of the stomach. When we are fortunate enough to deal with an early case and a small tumor, both these operations can safely be performed at one sitting. But when infection and ulceration are added to the cancer and there is a large inflammatory mass around the pylorus, the patient weak from starvation, it is not the cancer poisons which are killing him, but the lack of nutrition. Now, after a short and comparatively safe operation, the patient can eat again, and in two or three weeks he will be a good "safe risk" for further surgery. When the abdomen is opened for the second time the tumor will have diminished wonderfully in size and can be removed with infinitely greater ease and safety than would have been possible at first.

This two-stage method has given me great satisfaction and I am morally sure that I have saved patients who would have died under the more brilliant single stage procedure.

What has just been said of dangerous and unpromising operations upon patients who are in any event doomed, does not mean that half-hearted work should be done when there is a chance for radical cure—even though life is thus put in great jeopardy. Take the latest field to be conquered in thoracic surgery, in which the first battle was won by Franz Torek of New York, on March 14, 1913, when he successfully removed a cancer of the esophagus through the chest wall. This most formidable piece of work would not have been justified had there been secondary deposits in other parts of the body. Relief, not an attempt at cure, would then have been the proper aim of the surgeon. But when he was able to remove the entire growth and rid the patient once and for all of that cancer, the extent of the operation and even its great mutilation were not worth considering.

Before this audience it is hardly necessary to emphasize this aspect of the cancer fight. You surely know, for example, the remarkable improvement which has followed the adoption of the present operation for carcinoma of the breast. How hopeful is the outlook even in most malignant forms of the disease when a complete operation is performed early.

As an instance I may briefly mention the case of Mrs. M., a woman 38 years old, who found a nodule the size of a large bean in the outer upper part of her left mammary gland. The important point was that she was sure that there had been nothing there only a few weeks before. Her physician referred her to me, and in general anesthesia the little tumor was widely excised and at once examined. It proved to be carcinoma. So without interrupting narcosis the entire breast was amputated, with its underlying muscles and the glands in the armpit—an operation which twenty years ago would have seemed out of all proportion to a focus of such apparently insignificant size. But this patient, and many others treated in the same manner, has been permanently relieved of a condition surely fatal if left to itself.

It is generally conceded by the medical profession that cancer begins, through infection or otherwise, in one small part of the body; but there comes a time, sooner or later, when it invades other tissues or organs, either in the immediate neighborhood of the parent tumor, or even at a distance, until finally the condition of

carcinosis or generalized cancer is established. The usual cause of death is the poisoning of the system by the toxins absorbed from the growths. Surgeons are well agreed that if a primary or parent cancer is totally removed by an operation it will not recur, though of course we know of nothing to prevent the appearance of an entirely new tumor. Now all cancers are malignant and progressive, though some grow much faster than others, so it is perfectly plain that the sooner after its appearance a cancer is extirpated the better will be the chance of permanent cure.

In view of the still deplorable procrastination which we note in most of these cases, a delay which more than the disease itself brings reproach upon the surgeon, where it does not belong, instead of on the patient, where it does, it occurred to me to go over the cases in my private practice to learn how much time elapsed after the first suspicion of malignancy before surgical aid was sought.

Realizing that public information—I will not say education—has become much more general in recent years, I examined the last 2000 histories in my case books and learned some interesting things.

1. There were 86 cases of malignancy, or 4.3%. At this point I became interested to learn the percentage of malignancy among the class of individuals who would naturally drift to the public wards of hospitals. So I made investigations with the kind permission of the superintendents of five large hospitals in New York. In each institution the diagnosis on discharge was made the object of inquiry, and I learned that in 2000 consecutive surgical ward patients there had been:—

In Mount Sinai Hospital, 84 cases of malignancy, or 4.2%.

In St. Luke's Hospital, 82 cases of malignancy, or 4.1%.

In Presbyterian Hospital (in 2345 cases in 1912 including 400 private patients), 127 cases of malignancy, or 5.4%.

(And in the last 1084 cases in the new indexing system, there were 121 cases of malignancy, or 11.16%.)

In Roosevelt Hospital (2000 patients), 129 cases of malignancy, or 6.45%.

In New York Hospital (2000 patients), 34 cases of malignancy, or 1.7%.

An astonishingly small percentage, perhaps accounted for by the fact that this hospital has a very large ambulance service—so that many of the 2000 cases were of insignificant injuries.

Now, counting all these groups of approximately 2000 cases together we have in 12,345 patients, 542 instances of cancer, or 4.39%, which means that one in every 22 surgical patients had cancer.

2. Of my own 86 patients, 65 had never been operated upon and may be called new cases. The others came on account of secondary or recurrent disease and need not here be considered.

3. Of the 65, 10 were sarcomata, 55 carcinomata.

4. Of the 65, 35 were in men, 30 in women.

But the most interesting fact from the surgeon's viewpoint was the answer to my original inquiry, concerning the promptness or tardiness of the surgical consultation.

5. I found that after the first discovery of a tumor, or after the first suspicious symptoms, the men had waited on the average 12.2 months before consulting the surgeon, the women 11.9 months, a difference of but nine days. Evidently the sexes are after all pretty evenly divided in regard to wisdom, or rather the lack of it, for no person of good sense could describe as wise the delay of a year in a matter so vitally important.

Now we know that very few persons discover or suspect the presence of cancer until the symptoms are very pronounced, or until there is a tumor of considerable size; also that such a tumor, with or without symptoms, has probably been in existence for say six months before it was discovered. So that we may assume that cancer patients do not come to the operating table until at least a year and a half after the onset of the malignant disease.

Precious time thrown away; great dangerous operations to be undergone instead of minor ones.

Surely with such a handicap the wonder is that science and skill have been able to make the steady headway which has been shown in the last twenty years of surgery.

Whatever may be the discoveries of the future, there is no excuse for failure to grasp at once the hope held out by the present.

CORYNEBACTERIUM HODGKINI IN LYMPHATIC LEUKEMIA AND HODGKIN'S DISEASE.

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From the Pathological Laboratory, Massachusetts General Hospital, Dr. James Homer Wright, Director.

NEGRI and Mieremet[1] recently announced the cultivation of a bacillus from two cases of "Malignant Granuloma." They cultivated this organism from the lymph nodes and spleen of the first case (post-mortem) and from the cervical lymph nodes of the second case. The bacillus was also found in the sediment of the spleen pulp which had been treated with antiformine as well as in stained sections of the spleen.

They made extensive cultural and animal experiments and think that this bacillus may be the cause of the disease.

Bunting and Yates[2] observed the same bacillus in cultures of the lymph nodes from seven cases of Hodgkin's Disease; they designate it "Corynebacterium Hodgkini" and claim to have produced in a monkey "progressive enlargement of a single group of lymph nodes which at the time of writing show histological changes identical with those seen in the lymph nodes of human beings where the disease is of the same duration."

Billings and Rosenow[3] isolated the bacillus from the lymph nodes of 12 cases of Hodgkin's disease; they have suggested that vaccines may be of value in the treatment of the disease.

Cultures were recently taken from the lymph nodes of two cases at the Massachusetts General Hospital. The first case was one of lymphatic leukemia and the second case, one of Hodgkin's disease. The bacilli isolated from both of these cases were morphologically and culturally identical. They were also apparently identical with the bacilli described by the authors above mentioned.

CASE 1 was a boy of twelve years who entered the east medical service of the Massachusetts General Hospital, in charge of Dr. D. L. Edsall, on Nov. 1, 1913.

When three years of age, he had had measles; but was otherwise well until two years ago. At that time some of the teeth in his left lower jaw were filled; this was followed by toothache and swelling of the lymph nodes. The teeth were then removed, the swelling and pain disappeared and he was well until three weeks before his entrance to the hospital.

He then noticed a painless swelling in both sides of his neck; and, a week later, an enlargement in both axillae; he also had pain in his left upper abdomen.

He attended school but was sent home by the school physician. He was then seen in consultation by Dr. H. F. Vickery, who advised his removal to the Massachusetts General Hospital.

On entrance, his physical examination was negative except for the enlarged lymph nodes, tonsils and spleen. Below both ears was a mass of glands about the size of an egg, with numerous smaller, firm, discreet glands lower in the neck; palpable glands were present in both axillae and groins. None of the glands were tender. Both tonsils were enlarged and their crypts contained pus. The spleen was enlarged to percussion and easily felt 3 cm. below the costal margin.

Blood examination at this time showed 5,286,000 red blood cells and 65,800 white blood cells per cubic millimeter. There was 75% hemoglobin. The white blood cells were 80% lymphocytes and 20% polynuclears. Blood platelets were rare.

On November 3, an x-ray showed a mediastinal mass which was thought to be enlarged glands.

On November 5, the patient's tonsils and adenoids were removed to relieve difficulty in breathing and to remove the pus foci.

On November 6, the white blood count was 220,000; 99% lymphocytes and 1% polynuclears.

On November 7, the white count was only 1,800; 55% polynuclears and 42% lymphocytes. Coincident with this drop in the white blood cell count, there was a marked diminution in the size of the spleen which could not be felt below the costal margin and a diminution in the size of the lymph nodes from the size of an egg to that of a bean. The blood platelets at this time were estimated as being normal in number.

About November 20, the lymph nodes again increased in size, the spleen became palpable and the white blood count was raised to 9,000. The differential count remained practically the same, however, until November 28, when the white cells were 236,000 per cu. mm., 80% of which were lymphocytes and 20% polynuclears. The spleen could now be felt 5 cm. below the costal margin.

On November 28, one of the right inguinal lymph nodes was removed, ground in a sterile mortar and planted on various media.

Eleven tubes were inoculated; seven of these showed a growth of the bacilli described below, after five days' incubation.

A vaccine was prepared as soon as possible; 50 million bacilli were inoculated on December 6 and 50 million on December 10.

The patient's condition did not improve; he became gradually weaker; the spleen, liver and lymph nodes increased in size; the white cell count rose to 298,000—99% lymphocytes and 1% polynuclears—and the platelets were diminished.

He died of weakness and of adenoid hemorrhage on December 12.

CASE 2 was a woman, 30 years of age. She had typhoid fever seven years ago but with this exception has always been well.

The present illness dates from March, 1913, when she noticed a small glandular swelling in the left side of her neck. A few days after she observed this swelling, she noticed other glands in her left axilla and in her right neck.

For three weeks before entrance, she noticed that these glands were growing rapidly larger; that she was short of breath and weak. For these reasons she was admitted to the east surgical service of the Massachusetts General Hospital on Nov. 26, 1913.

The patient was a well-developed, rather emaciated woman. She had a mass of glands, the size of a lemon in her left neck; a mass of the same size in her right neck.

There were numerous discreet glands above the right clavicle. And a glandular mass about the size of an orange in the right axilla. Enlarged glands were also present in her left axilla and in both groins. Her physical examination was otherwise negative. Her blood examinations were as follows:

November 26, white blood cell count 8,400.

December 1, red blood cell count 3,552,000; white blood cell count 7,680.

A stained specimen showed the following: Polymorphonuclears, 86%; lymphocytes, large, 7%; lymphocytes, small, 3%; lymphocytes, transitional, 3%; unidentified, 1%.

Glands were removed from the patient on December 6 for pathological examination and on December 10 for culture.

A diphtheroid bacillus, similar to the one observed in the preceding case, was obtained in pure culture in four tubes; six others were inoculated but showed growth.

The patient was discharged from the hospital shortly after the cultures were taken and she has not returned as advised. Her subsequent history is not known at present.

BIOLOGY OF THE ORGANISM.

The bacteria cultivated are markedly pleomorphic. Most of the organisms resemble forms of the diphtheria bacillus; but some are short and coccoid. I have not observed any definite branching forms.

Some take the stain uniformly, others show a granular character while still others take the stain more deeply at the ends. They stain by Gram's method, are not acid-fast and are resistant to antiformin.

They grow at first slowly, growth being first visible after five days' incubation. Transplants grow well on most of the ordinary culture media, but best in media rich in body albumen.

On agar and blood serum, the lemon yellow fluorescence observed by Negri and Mieremet, is particularly noticeable. On potato, the growth appears as small isolated lemon-yellow colonies. The growth in bouillon or ascites bouillon, is at first in adherent masses although later the bouillon is somewhat clouded. It grows as isolated yellow colonies in gelatine, without liquefaction. It does not produce gas in glucose or lactose.

SUMMARY.

A diphtheroid bacillus, similar in its morphological and cultural characteristics to the organism described by Negri and Mieremet, Bunting and Yates, and Billings and Rosenow has been cultivated from the lymph nodes of a case of lymphatic leukemia, and one of Hodgkin's disease.

Its relationship to these diseases has not been definitely determined, although further studies on this subject are in progress.

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THE CONDITION OF THE VASO-MOTOR CENTER IN PNEUMONIA.

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AND

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SINCE 1889[1], it has been generally believed that the vaso-motor centre is exhausted in "pneumonia." The most important carrier of impulses to this centre is the depressor nerve. The average fall of blood pressure, produced by the stimulation of the depressor nerve in normal animals is a measure of the normal state of the vaso-motor apparatus. The sciatic nerve also contains important fibers afferent to the vaso-motor centre and the rise of blood pressure produced on stimulating the central end of the sciatic nerve is also an index of the condition of the vaso-motor centre.

The present investigation consists in the production of lobar pneumonia (acute pneumonitis) in cats and in the comparison of the changes in blood pressure obtained by stimulating the depressor and the sciatic nerve in animals near death from this disease with the changes obtained by the stimulation of these nerves in normal animals.

We have produced pneumonia in cats* by blowing into the trachea cultures of pneumococcus mixed with carborundum powder.

The details will be found in a paper to be published in the *American Journal of Physiology*.

A few hours before death the stimulation of the depressor fibers in the vagus nerve gave a fall of blood pressure equal to the average normal fall, and stimulation of the pressor fibers in the sciatic nerve gave a normal rise of blood pressure.

Following is a typical protocol for a depressor experiment:—

Experiment Dec. 16, 1913. At 10 a. m. a cat weighing 1750 grams was etherized and ten cubic centimeters of a twenty-four hour culture of pneumococcus, grown in glucose bouillon, was injected through the glottis and the trachea into a bronchus. At 4 p. m. the rectal temperature was 38° C., and the cat was apparently well.

Dec. 17, 10 a. m., temperature was 38° C., and the cat seemed well. Under ether 10 cubic centimeters of a twenty-four hour glucose bouillon culture of the pneumococcus, plus one gram powdered carborundum, was injected into a bronchus. At 4.30 p. m. the temperature was 40° C.; the cat was listless and moderately ill.

Dec. 18, 10 a. m. Temperature, 40°C., condition about the same, breathing labored and rapid. 4.30 p. m., temperature 39° C. Animal seems a little better.

Dec. 19, 9 a. m. Temperature, 39° C. 4.30 p. m., temperature 39° C., animal weak and ill. Five cubic centimeters of a twenty-four hour glucose bouillon culture pneumococcus injected through the trachea.

Dec. 20, 9.15 a. m. Temperature 38° C., condition unchanged. Under ether the left carotid artery was connected to a membrane manometer, both vagi were cut and the central end of the left vagus was stimulated with induction currents perceptible when the electrodes were placed on the operator's tongue. The blood pressure fell from 100 mm. Hg. to 65 mm. The absolute fall was 35 mm., and the percentile fall 35%. At 5 p. m. the cat was killed.

Autopsy: The lower lobes and the lower halves of the middle lobes on both sides were voluminous, firm, leathery, dull red-gray in color. They sank in water. On section the surface was gray-red, granular, dry. The remainder of the lung was pale, soft, crepitant and floated in water.

* So far as we are aware this is the first time acute lobar pneumonitis has been produced in cats.

In the experiment of Jan. 2, 1914, in a cat with complete consolidation of the right lower lobe of the lung the temperature was 41 degrees C., the stimulation of the central end of the left sciatic nerve caused the blood pressure to rise from 55 m.m. to 125 m.m. Hg; an absolute rise of 70 m.m.

The vaso-motor reflexes obtained from the depressor and the sciatic nerve were equal to the reflex in normal animals.

The evidence is conclusive that, in animals near death from pneumonia, the vaso-motor apparatus is not measurably impaired.

REFERENCE.

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A STUDY OF CANCER.

BY SEELYE W. LITTLE, M.D., ROCHESTER, N. Y.

(*Continued from page* 80.)

To revert again to the skin. In considering wounds we must remember several facts in this connection. The epidermis is itself protective; it is composed of one of the few kinds of cells which can reproduce, and most important of all it is of all tissues the one that keeps alive physiologically the longest. Witness the growth of hair and nails after death. Now put this with that other well known fact about cancer, its chief occurrence after the period of growth and development and largely in organs which have served their purpose, such as breast and uterus, and we can see why skin cancer is rarer than we should expect with wounds alone in view. For skin can repair itself and is physiologically active generally until death of the organism and even after.

6. The stomach. The commonest single seat of cancer. Next to the skin it is the worst treated organ in the body and increasingly so as civilization advances. It is quite likely that with alcohol, spices, indigestible food, hot and cold food and the like, we cause minute wounds of the gastric mucous membrane daily, and especially do we injure the narrow alternately dilating and contracting channel, the pylorus, through which all these must pass.

Now for two conceivable ways in which a wound may derange a cell or a group of cells so as to start them towards a riotous and destructive growth. A group of epithelial cells is injured. At once a process of repair begins. If the cells are not too badly injured they can again become perfect and resume their functions. If so badly damaged that complete repair is impossible, they may imperfectly resume function. If more damaged, they may live, but so crippled as to be unable to do their work at all, but still alive and ready for mischief. Or, more probably, in the process of repair and the manufacture of scar tissue some perfectly good uninjured neighboring cells are so shut in and enclosed as to be unable to functionate in the normal way; but they, too, are very much alive. In fact, not functionating but lying dormant, as it were, they are not physiologically dying at all after a lapse of several years when their hard-working fellows are dying. Now comes the relative failure of their patron ductless gland. And by the way, this failure may be only relative to these shut-in cells. That is, the failure may be just in the right proportion for all the other physiologically failing cells, but not for these idlers who have not worked for years. Their accustomed fare is shut off; there is still plenty, but not "what they have been accustomed to." They deteriorate, but they thrive over their fellows because they are physiologically younger. At a certain point in deterioration they are at the stage where the elementary functions return and they can reproduce their kind, which is now a poor imitation of their once highly specialized selves, and they do reproduce.

Again, the same possible degeneration may result purely as an effect of repeated slight injury over a long time, the injured cells then falling far behind their fellows physiologically from overwork. In this case we must assume that these cells are physiologically much older than their fellows, and though the ductless gland is failing *pari passu* with all other body cells, yet for these overworked cells there is actually an over secretion of the patron ductless gland with resultant actual stimulation of the deteriorated cells to their youthful function of reproduction.

Of these two possibilities, the former seems much more probable.

If all this is true, the question at once arises, why is not cancer almost universal after middle life? My explanation of this is at the base of all that follows as to cause and treatment. And incidentally it also answers why is not childhood, the time of bumps and bruises, also the time of cancer?

It is a truism that as soon as a man ceases growing and developing he begins dying. If, within bounds, you injure a growing cell, it goes right on growing again, perhaps even better than before. In fact it is apt to be a hardier cell for having fought against and conquered enemies. The gardener prunes unmercifully to get a hardier and more perfect growth. But after growth has ceased or after the limit of growth has been attained, pruning not only does no good, but it destroys what has already been accomplished. Now injury to a child's cells within reason does no particular harm, for it is the child's main object in life to grow and to perfect what is already there. We all know clinically how quickly children rebound after a severe illness. But after growth has ceased, cell injury of even slight character may easily be a serious matter because irreparable.

Facts learned in recent years have a very important bearing on this matter. We know now that certain organs in the body, formerly of no known use, are really and literally of vital importance, for they have to do with growth, and without them growth is imperfect or indeed impossible. Such organs are the pineal body, the pituitary body, the thymus, the thyroid, the adrenals, the generative organs, etc.

The next important link is the fact that all organs do not die physiologically at the same time. The thymus and the thyroid, for example. Next comes another well known fact, *i.e.* organs that theoretically and naturally ought to die at the same time do not do so. A man may have hard arteries at forty instead of at seventy, with the brain still at the forty-year stage. This in general seems to me to explain very many of the diseases due to civilized life as opposed to natural life. And I believe it explains cancer.

That is, ductless glands and the cells where cancer starts are not in physiological harmony. This might happen in many ways; perhaps as already explained.

This theory of cancer is at variance with no known facts about cancer and certainly explains very satisfactorily most of those facts. Even if, as seems improbable, cancer should be proven of parasitic origin, it is easily possible that the parasite might work not directly to cause cell growth, but indirectly by weakening either the cells or the ductless glands involved, or both. If cancer is proven to be of chemical origin, the same holds true.

This theory explains the general incidence of cancer at and after middle life, its increasing virulence the younger the patient, its attacking only highly specialized cells, its etiological relation, frequent if not invariable, to trauma, its highly probable non-existent contagiousness except auto-contagiousness (what we call recurrence), its rare though possible "spontaneous" cure, the only known positive cure, early exterpation, its cachexia (due to the simpler cells getting the bulk of the food, the absorption of waste products from the same cells, and most important of all, the necessary faulty metabolism of the whole system), the known incidence of the disease proportionately in the various organs, as shown in table 3, the increasing incidence of cancer as the complexity of civilization increases, and many other facts of lesser importance. But the thing can occur only by proper combination of injury, specialized cells shut in for a long time and relative failure of the essential ductless gland for the given case.

Before discussing possible curative measures on the basis of this theory and giving the clinical results of some of these possibilities already tried, another matter of the highest importance should be considered, because it certainly has a bearing on the subject. I refer to lime metabolism and sugar metabolism, their relation to the ductless glands, to various disease processes and to each other. This matter has in recent years received much attention and many important facts have been discovered. Our idea of one disease at least, diabetes, has thereby been revolutionized and the ductless glands have been found to have an unexpectedly large part in this metabolism. Because of the large clinical experience of diabetes sugar metabolism has been the more studied and much more is known of it than of lime metabolism. It is now known positively, for example, that, besides diabetes, such widely differing clinical entities as the following have an important relation to sugar metabolism: cretinism, acromegaly, giantism, Graves' disease, Addison's disease, myxedema, and cancer, to say nothing of eczema, psoriasis, rheumatism gout, and a host of minor ailments. It is astonishing to find that the classical puncture at the base of the brain fails to produce glycosuria if the suprarenals are lacking, that a hypodermic dose of a few milligrams of adrenalin always produces in normals a temporary glycosuria which may not reappear at subsequent injections, that if the thyroid is removed, adrenalin fails to produce glycosuria, but that, on the other hand, if the parathyroids are removed the glycosuria effect of an adrenalin injection is greatly increased; that in some diseases it is almost impossible to produce glycosuria, that in some diseases there is a craving for sugar which, though satisfied, does not produce glycosuria; that in others there is no craving for sweets at all; that in some there is excess of sugar in the blood without glycosuria. It is very suggestive to find, for example, that diabetes and cancer occur in the same individual at the same time with the greatest rarity, that psoriasis is a very common predecessor of cancer, and that in cancer there is often, perhaps always, a hyperglycemia, though very rarely a glycosuria. It is interesting to know that in giantism, for example, where calcium metabolism must be enormous, and in acromegaly, where the same is true, diabetes is common at certain stages, but on the contrary when the active disease has ceased and there is actually a hypo instead of a hyper pituitarism, the sugar tolerance is very high and diabetes is almost an impossibility. Again, in the disorders of pregnancy, it is suggestive that sugar and lime seem to have intimate relations. Teeth often decay at this time, glycosuria is not uncommon, the administration of lime certainly has some influence on the prevention or control of eclampsia, and incidentally remember that in pregnancy both the thyroid and the pituitary are commonly hypertrophied. In this connection recall also the not uncommon myxedematous condition of hands, feet and face without kidney lesions and without true edema, and recall how after labor this enlargement of face and extremities usually subsides.

Such are some of the remarkable facts with reference to calcium and sugar metabolism. They are introduced merely to show how important this subject is and to show that in all probability there is certainly a derangement of sugar

metabolism in cancer, that this is an important element in cancer and that it is an element generally, if not always, associated with disordered function of one or more ductless glands; that calcium metabolism and sugar metabolism are intimately related and doubtless so in cancer where we know positively the sugar metabolism is.

Granted that this general theory of cancer is at least a reasonable one and points in the right direction, the question at once arises, "Are we any nearer a cure for cancer?" I think we are decidedly. In medicine theory is of ultimate use only as it helps restore sick people to health. The man with cancer cares not at all about theories, systems, serums, germs, or anything else unless he can recover. Therefore some of us have been treating cancer on the basis of the theory of cause already outlined. We had first to become more definite. We had to decide in a given case which ductless gland or glands were at fault and whether it was a fault of hyper or hypo secretion or a secretion correct in amount but faulty in composition.

For obvious reasons only inoperable cases were selected, and I will say at the outset of the clinical discussion that very astounding results were apparent in every case in a few weeks, so much so that the three or four medical men who were interested were sure that, whatever the ultimate result, we were on the track of something of the first importance in medicine.

The pituitary gland was first considered because of the known fact of its great importance normally in the matter of growth. We proceeded on the theory that this gland in cancer was hypersecreting at a time of life when it should be failing along with general bodily failure, and that certain cells long idle, because shut in by scar tissue, as already described, were not in the same degree of physiological dying as their fellows and therefore were activated by the hyperpituitarism. But these idle cells could not respond as they should to such stimulation in a normal fashion, being shut in as it were. Therefore we presumed they did only what they could. Now a cell can really do only a few things in the last analysis: it can eat, pass off waste matter, move, grow, secrete something, and finally, most important of all and really most essential for all life, it can reproduce its kind. Specialized cells, certainly in their old age, do not reproduce their kind; that function they have delegated, in humans, to other specialized cells. But if a specialized cell is prevented from doing its special work for a long time, it loses that power. Furthermore, if it is alive and well fed it will certainly do something. We assumed that such cells are the focus for cancer. That is, they are healthy but physiologically deteriorated cells which are comparatively young, and which receive an extra stimulus from the hyperpituitarism. They, therefore, do the only thing left for them to do. They reproduce their kind, atypical to be sure, but characteristic. And being, relatively to the other body cells, young, they are active out of all proportion to other cells. In other words, we have a cancer.

On this assumption, the rational thing would seem to be to remove some of the pituitary body. But for a patient far advanced in cancer, such a procedure was negatived. The risk was too great. It then occurred to me that the pituitary gland is an organ which certainly has two very remarkable and apparently widely separated functions: it regulates growth and it helps regulate sugar metabolism. I decided to make it work overtime at the sugar metabolism, hoping that so much of its energy would thus be occupied that it could not devote much to its growth function. I was encouraged to this opinion by the known fact that cancer and diabetes are extremely rare in the same patient. Therefore I decided to feed the first patient with inoperable cancer I had with large amounts of sugar. The result was so extraordinary that it was with difficulty I could think of anything else, for this patient apparently entirely recovered within two months. Fortunately or unfortunately, the fact that I had no scientific proof that the case really was cancer prevented me from at once rushing into print. Clinically, however, the woman was dying from uterine cancer. Her case is Case 1 described later. But I did enlist the help of some of my fellows and told them my theory and the result. We then tried the thing out with four other patients, one cancer of stomach, one cancer of esophagus, one cancer of skin and one cancer of tongue. There is no scientific doubt at all as to the nature of these cases. The stomach case died in the usual way, the esophagus case died with a metastasis in lung, the tongue case and skin case are under treatment.

All four cases promptly showed three remarkable results. All had a feeling of well-being, three even gained in weight, all were relieved of pain and in all the growth diminished in size. This is surely enough to show that something new was being done and was tremendously encouraging. The results in the esophagus case and in the stomach case only served to start fresh studies which at once opened wide fields. In passing it seems probable that at least one new disease entity has been recognized and many otherwise puzzling cases have been more or less cleared up.

At this point the writer made a careful tabulation of various known facts with reference to the ductless glands. These tabulations appear elsewhere. As a result, the theory was changed. It seemed highly probable that in each case of cancer, depending on its embryological location, a special ductless gland was chiefly involved. For example, the pituitary body is embryologically ectoderm and the stomach is endoderm, and it seemed more likely that if any ductless gland were at fault in cancer of the stomach it would be a gland of endodermic origin, *i.e.* thymus, thyroid, parathyroid, islands of Langerhans or the gastric and intestinal mucosa.

Again, it was enlightening to find that one or more of the ductless glands derived from each of the three germ layers had something to do with sugar metabolism. (See Table 6.) It was still further enlightening to find that always, so far as we could determine, in cancer there is hyperglycemia, but, as already stated, rarely glycosuria. And it seemed almost impossible to produce an alimentary glycosuria.

Another of the tables shows how hyperglycemia may be produced. (Table 7.) It will be seen that in the case of some of the ductless glands, as the suprarenals, for example, hyperaction produces an excess of sugar in the blood, while in the cases of others, the pituitary for example, hypo action does the same thing.

Taking all things into consideration it was believed finally that it must be a case of hypo action of one or more of the ductless glands that was the ultimate causative factor in cancer, as explained earlier in this discussion; either this or a disordered action,—what Cushing in speaking of the pituitary body calls dyspituitarism. The explanation on this hypothesis would be again that the disordered action would affect most strongly the physiologically younger cells, the shut-in idle cells before mentioned.

With this idea, I began on the skin case, which under the sugar treatment had improved to a certain point and then the growth began vigorously in a new spot adjoining the old growth. In considering what gland was at fault, we find on consulting Table 1 that skin is of ectodermic origin. Table 2 shows that the following ductless glands are also of ectodermic origin: A part of the suprarenal, the pituitary, the carotid bodies, the pineal body and possibly the coccygeal body. The last three were ruled out because we knew little about them, but that little does not bear on the present subject. The suprarenal we rule out because hypo adrenalism does not result in hyperglycemia and does result in a well known disease entity—Addison's disease. There remains the pituitary. If the pituitary is at fault in such a case we can rule out hyperpituitarism for its results we know—acromegaly, or in the young, giantism. Therefore we are brought to the theory of hypopituitarism.

The suprarenal was strongly considered at first on the ground that if one omits the actual growth, many of the symptoms of cancer and of Addison's disease are alike: weakness, digestive disturbances, wasting, cachexia, etc. In fact we administered adrenalin, but without much effect one way or another. Again, as a side issue, it may be stated that for reasons not necessary to discuss in this place, adrenalin medication is disappointing, but we have under consideration some interesting possibilities in this connection. Also there seems a fairly definite symptom complex, the exact antithesis of Addison's disease, of which the writer has complete records of two cases. There are certainly many such cases.

So finally on Aug. 26 we began the administration of pituitrin, meanwhile keeping up the sugar administration until Oct. 1, when it was discontinued for reasons to be given presently.

On Oct. 1 there was found to be a very remarkable change in the growth We had not seen the patient since the pituitrin had been started but now we found the growth shrunken to a shadow of its former size, and the whole ulcerated surface healing. (Full details of this case will be given later with the other cases.) But we found the patient had been losing weight and strength while his cancer was disappearing. Several explanations of this were considered. We thought it might be due to too much sugar now that we were furnishing extra pituitrin to the patient, or that it might be due to toxins absorbed from the disappearing growth. At all events we stopped the sugar, urged a generous diet otherwise and gave strychnine. The urine at this time showed the characteristic increase due to the pituitrin. On analysis we found the urine to be of sp. gr. 1.012, acid, possibly a very faint trace of albumin, no sugar.

The tongue case (No. 6), doing badly after the usual initial gain, was next reconsidered.

On consulting Table 1 we find the tongue to be of endodermic origin. Table 2 shows the ductless glands of endodermic origin to be the thymus, the thyroid, the islands of Langerhans, the gastric and intestinal mucosa.

The thymus was ruled out as it is generally negligible after puberty. The thyroid was ruled out (although it was tried for a short time) because we knew the usual effects of hyper- and hypothyroidism in Graves' disease, myxedema and cretinism. The islands of Langerhans were ruled out, at least so far as hyper function is concerned for reasons already given. Hypo-function we know is the usually accepted cause of diabetes. There is very strong ground, however, for seriously considering relative hypofunction of the islands of Langerhans as one of the factors in producing cancer of endodermic tissues. If there is such hypo-function we expect diabetes; but suppose in a given individual there exists a nest of our assumed "idler" cells. When as the first result of hyposecretion of the islands of Langerhans an excess of sugar appears in the blood, that is exactly what suits these physiologically younger and more active cells which from disuse have lost their specialized functions and have deteriorated. They eagerly seize upon this extra food and thrive upon it; if at the proper stage of retrogressive development they multiply and the cancer is started; as the failure in the islands of Langerhans increases and the amount of sugar in the blood thereby increases, the cancer naturally grows, taking all the sugar that can be furnished because the increase is gradual. Therefore a person at or after middle life who has hypo-secretion of the islands of Langerhans will have diabetes or cancer, depending upon whether or not he has the other factors of cancer present. It is curious to note that many more children have diabetes than have cancer, but that very many

more people at or after middle life have cancer than have diabetes. The reason is obvious if our theory is correct.

Therefore hypo-secretion of the islands of Langerhans must be seriously considered in the case of endodermic cancer. A reliable preparation from these organs has not yet been obtained to use in any cancer case as yet.

(To be continued.)

Clinical Department.

MEASLES: ITS RELATION TO ORAL CONDITIONS; WITH A CLINICAL REPORT OF SIX CASES.*

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MEASLES is an acute, contagious, febrile disorder, characterized by catarrhal symptoms affecting the upper respiratory tract, and an eruption of dusky-red, slightly elevated macules. It is the most contagious of the various exanthematous affections and it is almost impossible to prevent its spread in an institution or household. Susceptibility to measles is practically universal. It may attack anyone who is not already immunized by a previous attack.

The eruption of measles may be seen on the mucous membrane of the mouth previous to its appearance on the cutaneous surfaces. The eruption occurs usually on the second day. Flindt[1] in 1880 describes the exanthem of measles as follows: "The eruption consists of round or somewhat irregularly shaped, light red spots, rather indistinctly circumscribed, and only just raised above the mucous surface. The spots vary in size from a pinhead to a lentil, are in part isolated and in part collected into groups, quite irregular in shape, and in some places coalescent. At the centre of the small red spots, and giving them a peculiar appearance, are situated numbers of tiny, whitish, shiny, raised points, apparently vesicular in character and irregularly grouped according to the arrangement of the spots on which they lie. Similar spots can also be perceived on the mucous membrane of the cheeks."

One of the most remarkable and instructive epidemics of measles is that which visited the Faroe Islands in 1846. The island had been free from measles since 1781, a term of sixty-five years. The disease was introduced by a Danish cabinet maker, infected in Copenhagen. He communicated it to two friends. This gave rise to an epidemic which in a short time attacked 6000 people out of a population of 7782. Persons of all ages were stricken, the old inhabitants who had passed through an attack as children in 1781 alone escaped. Not one of the older inhabitants, who was exposed to this infection and was unprotected by previous attack, failed to acquire the disease.

The extreme contagiousness of measles, as shown in the preceding paragraph, is proof of its microparasitic origin. In 1892 Canon found in fourteen cases a bacillus, which he considered to be a specific causative agent. It could be grown on bouillon but on no other medium. Czajkowski[2] found a bacillus in the blood and mucous secretions of fifty cases of measles, which was apparently identical with that discovered by Canon. It grew, however, on various albuminous media. Josias[3] failed to find it in twenty-four cases; Barbier in twenty-one cases.

In 1900 Lesage[4] published the results of a study of two hundred cases. He found a delicate micrococcus, which grew best on gelose, took stains slowly, and was decolorized by Gram's method. The cultures bore resemblance to the Fraenkel's pneumococcus. Rabbits were inoculated with blood and nasal secretions in many cases, and measles was apparently reproduced in nearly all. The organism was found constantly in measles, but was absent in twenty-five cases of scarlet fever and in forty-five normal children.

More recently Weber[5] has detected bodies in the blood which he regards as protozoa. From the above divergent findings it is evident that further research is necessary before any of the organisms described can be accepted as the specific cause of measles.

It will be found convenient to discuss here the influence of institutional environment upon the mortality rate of measles. It is much more fatal in institutions than in the home and is often called "the scourge of children's institutions." Holt speaks of an epidemic in the Nursery and Child's Hospital in 1892 in New York in which there were 145 cases, with a death-rate of 35%.

In the St. Vincent's Orphan Asylum, Camden Street, Boston, the statistics of the cases of measles for the last six years, compiled by F. A. Keyes,[6] D.M.D., are as follows:—

1907-1908, 24; 1908-1909, 50; 1909-November, 1910, 40; November, 1910-April, 1911, 25; April, 1911-May, 1912, 0; May, 1912-May, 1913, 0; May, 1913-November, 1913, 6.

In April, 1913, a new child, infected with measles, spread the disease to six of the children. Examination of the mouths of these children showed the following conditions:—

CASE 1. Eight years old. Cavity in right inferior six-year molar; right inferior second temporary molar, badly decayed; left inferior first temporary molar, abscessed; right superior second temporary molar, decayed; mouth dirty; fetid breath; throat clear of tonsils; no adenoids present.

* Read at the monthly meeting of the Guild of St. Appolonia, Nov. 13, 1913.

CASE 2. Seven years old. Right superior second temporary molar, decayed to gum-line; right superior temporary cuspid, abscessed; cavity in left superior second temporary molar; left inferior second temporary molar, crown three-fourths gone; left inferior first temporary molar, decayed, with gums red and turgid; inferior right temporary molars, badly decayed; breath fetid; dirty mouth; tonsils present.

CASE 3. Five years old. Inferior right temporary molars, badly decayed; first temporary has an abscess discharging pus; left inferior first temporary molar, badly decayed; cavity in left inferior second temporary molar; superior right temporary molars, two proximal cavities; superior left first temporary molar, cavity in crown; tonsils enlarged; and adenoids present.

CASE 4. Five years old. Proximal cavities in the four anterior superior teeth;. inferior left first temporary molar, coronal cavity; teeth covered with green stain; gums red and turgid; tonsils enlarged. This is the child who brought the measles into the institution.

CASE 5. Three years old. Frenum enlarged; superior lateral incisors missing; on right superior central incisor gum has receded and is very red and turgid; on left superior temporary molars, roots are denuded; gums on lower, red and turgid; stomatitis present; this child was discharged from the hospital two weeks before this examination was made.

CASE 6. Eight years old. Superior right second temporary molar, abscessed; inferior left six-year molar, mesial cavity; inferior right temporary molars, decayed; gums red and turgid; mouth in six-year molar region very unhealthy; no tonsils.

It is an interesting fact that many of the children at the institution, whose mouths were in good condition, and who were exposed to the infection, were not attacked by the disease, although they had not been made immune by a previous attack.

From the investigations, as reported above, of research workers in all parts of the world, it is evident that measles is one of the most important of childhood diseases. Dentists should, by careful observation of the cases of measles occuring in their practise, be able to obtain interesting data in regard to the oral conditions found in these cases.

While we know that we have but few cases to report and that no logical conclusions can be drawn from so few, we trust we have aroused a little interest. In addition, we hope that other men, who have the opportunity, will observe the oral conditions found in cases of measles, occurring in their practise and report them.

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Medical Progress.

FOURTH REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

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TUBERCULOSIS.

Roentgen Ray Detection of Abscesses in Tuberculosis of the Spine. Roederer and Weil[1] for the last two years have been systematically examining with the Roentgen ray every child suspected of having tuberculosis of the spine. They have been surprised at the large proportion of cases in which shadows of abscesses were found about the vertebral focus. They call attention to the ease with which these abscesses can be detected by radioscopy before they induce any symptoms. These findings also emphasize the necessity for prolonged supervision, after an apparent healing of a vertebral process. They consider that with the present technic it is impossible to distinguish by radioscopy between incipient and florid abscesses or the cicatricial changes left after the healing of an abscess.

In America attention has been called to these facts and the ease with which abscesses in Pott's disease may be detected by radioscopic examination, by Compton Reily[2] of Baltimore.

Multiple Bony Tuberculous Lesions in Children. Calve[3] has made a valuable statistical study of the occurrence and prognosis of multiple tuberculous bony lesions in children. In various groups of cases collected by Dr. Glacys and from the records of the Hôpital Maritime at Berck the percentage of multiple lesions has varied from 9.4%, to 13%. In 1910 at Berck there were 85 cases of multiple foci among a total of 869 cases, making 9.8%. Of these 85 multiple cases, 27 were hip disease, 14 being double coxitis. In 9 hip and spine were involved. Thirty-four cases showing multiple lesions were apparently primary in the spine, and of these only five showed more than one vertebral focus, the more common association in this group being with the hip and knee. Tuberculous meningitis occurred about four times as frequently (5.9% to 1.45%) in the multiple cases as in the single. Among the 85 cases having multiple foci there were 8 deaths, 9.5%, while among the 784 cases having single foci there were 21 deaths, or 2.5%. The prognosis, therefore, would seem to be unquestionably more serious in the multiple than in the single cases.

Tuberculin. Delitala,[4] after a considerable experience with the use of tuberculin as a diagnostic agent, believes most strongly in the value of this focalizing reaction. He considers it of special usefulness in the early stages when diag-

nosis is most difficult, from both clinical and radiographic examination. He reports in detail 38 cases. His initial dose is 2-10 mg., his second 5-10, his third 1 mg., and his fourth 5 mg. He allows two days to elapse between each dose, and does not consider rises of temperature of two or three-tenths of a degree as a positive sign.

Treatment of Surgical Tuberculosis. Iselin[5] has treated 800 cases of surgical tuberculosis with the Roentgen rays. He believes that some of the cases in which even amputation had been considered, have been cured. In certain patients with multiple foci only those foci exposed to the rays were cured. There was frequently noted an increase of weight as well. He considers that the rays often do not have sufficient penetration to overcome the density of the bone and that the danger of interfering with the epiphyseal growth and the sensibility of the skin present real limitations to the method. By careful technic it is possible to avoid immediate skin irritation, but as yet he thinks we cannot always avoid late ulcerations, their onset being delayed occasionally for years. This method of therapy he believes to be of less value than the exposure to direct sunlight in high altitudes, but he considers its value lies in its more general applicability.

Schede,[6] working in Lange's clinic, also writes favorably of Roentgen ray therapy in bone and joint tuberculosis. He believes only small "doses" should be employed, since the tubercular tissue reacts much more than the skin or healthy tissue. Cases with sinuses have shown the best reaction, and he has noted no interference with epiphyseal growth. A healthy epiphysis should, however, always be protected. He believes that the method should be combined with general hygienic treatment and orthopedic methods. A damaged skin, cold abscesses, fungus growths threatening perforation, are contraindications to the use of the Roentgen rays.

Bardenheuer[7] reports 40 cases of peripheral tuberculosis treated by heliotherapy at a high altitude. Of these 40 he considered the severity of the disease to be slight in 10, moderate in 11, and great in 19. Of these 19 serious cases, 10 were over twenty years of age, and 13 had "a splendid result." Seven of them he considers completely cured. He believes there may be an exacerbation of the disease in cooler weather. Altitude seems to be of much importance because of the greater therapeutic value of the sun's rays.

Baetzner[8] writes enthusiastically of the trypsin treatment of surgical tuberculosis. After much trial he has adopted the preparation of Fairchild Brothers and Foster, "Injectio Trypsini," which he finds satisfactory as to sterility, and both active and stable. Using himself as a control, he has experienced no ill effects. When the trypsin has been injected into abscess cavities there has been a marked change in the contents of the sac, the pus becoming at first syrupy and brownish and then like meat juice. In a few cases alarming symptoms have appeared and suggested an acute inflammatory phlegmon with rigor and high temperature. These have disappeared in from 24-28 hours, the swelling going down in from four to six days. The reaction in the great majority of cases has been only a slight smarting pain at the moment of the stab and sometimes a slight rise of temperature. The synovial hygromata, for example, of the flexor and extensor sheaths of the hand with "snow ball crunching" have improved under the injections very rapidly and the function of the tendons has improved also. Bones extensively diseased in children have shown what he considers marked and surprising regenerative changes in the skiagraphs. In abscesses after puncture he injects 1-2 c.c. of the Fairchild preparation diluted with ten parts sterile physiological salt solution. He avoids reddened areas. Two or three injections frequently suffice. In sinuses he injects into the walls of the sinus and into the surrounding parenchyma. In the synovial hygromata he injects into the synovial sheath, starting with 2-10 to 5-10 c.c. and after 3-4 injections using larger doses. In joints he injects directly into the parenchyma 1-2 c.c. of trypsin without the dilution with salt solution, using an ordinary hypodermic syringe. The article is apparently somewhat enthusiastic, although the author seems quite convinced that in trypsin he has a valuable therapeutic agent in surgical tuberculosis.

Sattler[9] has used, not trypsin but concentrated carbolic acid as an injection in "many" cases of surgical tuberculosis. He believes that the cases treated with his carbolic injections improved much more rapidly than those treated by other methods. Multiple foci or cases associated with pulmonary tuberculosis do not show a satisfactory reaction. He injects directly into the lesion at the point of tenderness a few drops, up to 15 minims, of concentrated carbolic acid, and repeats this injection every 2-3 weeks, according to the reaction. Age is no contraindication, although children react more quickly. There is little pain, and healthy tissue does not seem to be damaged. (Just why does not appear.) He says that there are no general symptoms.

(Ed. Note.—We report these forms of treatment without personal knowledge of their efficiency or safety. We have had slight experience with the use of the "injectio trypsini" of Fairchild and Foster in an out-patient clinic in the treatment of persistent sinuses. This slight experience has been favorable and leads us to continue. There seems, moreover, to be a growing tendency among many clinicians to seek again for antiseptics in the treatment of infections, and these reports are the most suggestive which have come to our notice in this connection.)

Robert Jones's[10] conclusions are always of great value from the fullness of his experience

and the keenness of his observation. In a recent article dealing with tuberculous disease of the bones and joints, he mentions the diagnostic aids and the principles of treatment upon which he relies. As to diagnosis, assuming that the vague history and insidious onset are characteristic, the next factor upon which he depends is the temperature. A subnormal morning temperature of 97.5 F. or less, with an evening temperature of 99, he considers to be practically pathognomonic of tuberculosis. A higher temperature, of 100° or more, suggests either a septic infection pure and simple or complicated with a tuberculous lesion. If the evening temperature is not high enough to suggest a septic infection and the morning temperature is not subnormal, then the case is probably the result of trauma and represents simply a contusion of the joint. The principles of treatment upon which he relies are, first, complete physiological rest; second, good nourishing food, especial importance being attached to butter, "drippings," jam, and sugar, with an unlimited allowance of good milk; third, fresh air; fourth, sunshine. Mr. Jones thinks that experience does not indicate the truth of the theory that by a certain amount of use the patient may give himself immunizing doses of his own tuberculin. He does not consider that the use of tuberculin is usually necessary for recovery, at least in children, and if this treatment is undertaken he calls attention to the fact that it is more often bovine than human. In adolescents the systematic use of tuberculin ought to be of great advantage, but the problems of administration and the indications for its use are not simple.

Pirie,[11] writing on the reformation of bone after resection, discusses tuberculous osteomyelitis. He states that it is not common, occurring 50 times in 8800 x-ray cases. The diagnosis can, in his opinion, be almost certainly made from the x-ray alone. The skiagrams of his two cases would be considered by many to be suggestive of a chronic pyogenic osteomyelitis, one of three months' duration with a periostitis, and the other following a sprained ankle a year previously. He resected four to five inches of the shaft in each case, and no microscopical examination or inoculation tests are noted. The more recent case regenerated in five weeks, while the second case required two years to restore the bone shaft. He is apparently in accord with Macewen's views as to regeneration of bone, and advises the careful preservation of the periosteum as "a limiting membrane" in the formation of new bone of normal shape. If the laying down of a new bone of proper size is unduly slow, he advises a fracture of the slender shaft as a stimulus to new bone formation.

(Ed. Note.—We have seen proved tuberculous osteomyelitis of the shafts of the long bones very, very rarely. Of its existence there seems to be little doubt, but the question has been properly raised as to whether these cases do not more commonly represent a mixed infection of pyogenic organisms with tubercle bacilli, this mixed infection favoring the more diffuse nature of the lesions.)

Wheeler[12] also advises resection in tuberculous disease of the lower end of the femur between the lower epiphysis and the shaft. He saws across the bone two or three inches above the metaphyseal line, and twisting the lower piece of bone free, wrenches it from the epiphysis. The periosteum previously separated is sewn together. The x-rays show good regeneration.

Brandes[13] reports on the end results of radical operation for tuberculosis of the knee. His material is obtained from the cases operated upon by Helferich in the Surgical University Clinic in Kiel from 1899 to 1907. Twenty-six children were operated upon. In 19 a resection was done, in 4 an arthrectomy, in four an amputation. Three of the resections had later flexion contractures. Fourteen other cases of resection examined had firm osteal ankylosis in a useful position of extension and the patients are able to work and earn their living.

Osgood[14] has reported 28 cases of excision of the knee performed by various orthopedic surgeons at the Massachusetts General Hospital from 1907 to 1912. In 14 of the cases either no sutures, absorbable sutures, or wire sutures were used to maintain apposition of the bone ends. Of these there were 3 subsequent amputations, and in 12 union was delayed three months or more. In 14 either malleable iron bone plates or aluminum wire bone clamps devised by Goddu were used, and in these there was only one subsequent amputation in a very unfavorable case treated afterwards outside the hospital. Firm union occurred in two months or less in 10, and every case except the amputated one finally obtained firm union. The plates or clamps were subsequently removed because of irritation in four cases, without further trouble. The belief is expressed that some method of obtaining accurate and firm apposition of the bone ends immediately following the excision is most desirable, and that if this is accomplished postoperative pain is less, firm union more quickly takes place, and a useful limb is almost always obtained.

Cases of tuberculous rheumatism, so-called, continue to be reported by Poncet,[15] Popper,[16] and Griffith.[17] We could wish for more convincing proof of the tuberculous nature of these arthritides, but there seems to be no doubt as to the frequent association of what seems to be a toxic polyarthritis with lesions of the lungs, glands, and bone, known to be of a tuberculous nature. Moreover, in substantiation of the claim that these arthritides are caused by the toxines elaborated in the tuberculous lesion, is the fact that increase in the joint symptoms follows small injections of tuberculin. Poncet advises operative treatment in the cases of "inflammatory" tuberculosis in which ankylosis

has occurred, declaring that resection with early mobilization gives brilliant results.

(Ed. Note.—To a limited extent this advice of Poncet may be wise in lesions of the elbow and possibly of the shoulder and wrist, but the experience of most men who have devoted attention to arthroplastic operations emphasizes the peculiarly unfavorable nature of old tubercular joints for these mobilizing operations. An exacerbation of the disease frequently takes place and the results by and large have not thus far been satisfactory.)

POLIOMYELITIS, SPASTIC PARAPLEGIA, AND OBSTETRICAL PARALYSIS.

Poliomyelitis. Colliver,[18] after a study of 16 cases in the recent Los Angeles epidemic, calls attention to "a peculiar twitching, tremulous, or convulsive movement" of certain groups of muscles, lasting from a few seconds to nearly a minute. It is greater than a tremor, and not so long as a convulsion. It occurs in the preparalytic stage. The face, the limbs, or the whole body may be affected. It occurs at intervals of about an hour, and being of very short duration is easily overlooked. There may be also a peculiar "hydrocephalic" cry.

(Ed. Note.—This early prodromal sign has frequently been observed in monkeys and has been one of the methods by which the onset of a paralysis could be predicted. It frequently is of longer duration and of more frequent occurrence in monkeys than Colliver has noticed in human beings.)

Müller[19] agrees with the findings of Lucas that in the early stages of an infection with the virus of poliomyelitis there is an increase in the quantity of spinal fluid, with moderate lymphocytosis and increase in the albumen. The fluid is, however, sterile to ordinary culture materials. Unless there is a mixed infection he has found in the blood a leucopenia with a relative increase in the lymphocytes and the eosinophiles.

McIntosh and Turnbull[20] have reported four attempts to transmit the virus of poliomyelitis from human beings to monkeys by intradural and intraperitoneal injections. The first two cases were unsuccessful, but in the third and fourth they obtained a typical picture. Historically, their report is of interest in that they state that this is the first work of the kind done in England.

Neustadter,[21] citing the report of Romer of a form of flaccid paralysis occurring in guinea-pigs, reports that two guinea-pigs living in a cage beneath a monkey which was suffering from poliomyelitis and had a nasal discharge, showed typical paralysis. He was able to transmit the disease through the nasal membrane in at least one case, which showed characteristic lesions of the cord and brain.

(Ed. Note.—As far as we are aware, this is the first time in which experimentors have observed a transmission of the experimentally produced disease without definite inoculation. Attempts have repeatedly been made to transmit the disease by contact, by means of mixing the nasal secretion of acutely sick cases with the food of healthy susceptible monkeys, and in various other ways. These attempts have been failures. It is a significant fact also that experimentors have not contracted the disease.)

Brown,[22] in reporting the Los Angeles epidemic, calls attention to the importance of quarantine and isolation hospitals, oiling of the streets, and general municipal attention at the first sign of an epidemic, but the facts only show coincident cases in families and localities. He believes that urotropin is harmless, but of little efficacy.

By far the most important contribution to our knowledge of the virus of poliomyelitis has been the successful cultivation of the organism by Flexner and Noguchi.[23] The culture material is sterile rabbit kidney in a human ascitic fluid covered with a layer of paraffin oil in order to furnish anaerobic conditions of growth. The usual sized portion of sterile rabbit kidney is first placed in the test tube and a fragment of corresponding size containing the virus removed from the cerebrum or other part of the brain or spinal cord is added. Upon these about 15 c.c. of sterile human ascitic fluid is poured, and finally about 4 c.c. of paraffin oil. The ascitic fluid must be originally sterile. Fractional heating or sterilization renders it unsuitable. The tubes are placed in the thermostat. If gross contaminations have been excluded the tubes show a faint opalescence appearing in about five days around the fragments at the bottom of the tube. The opalescence spreads to other portions of the tube in three to five days more. When the growth is well established in this fluid media it may be transplanted onto media made solid by the addition of a 2% nutrient agar, and on this small colonies become evident to the naked eye. Uncontaminated cultures may be stained best by the Giemsa or Gram method. The microorganism consists of globoid bodies measuring from 0.15 to 0.03 of a micron in diameter arranged in pairs, chains, and masses, according to conditions of growth and multiplication. Typical experimental poliomyelitis has been produced in monkeys by the injection of this artificially grown virus.

Spitzy[24] has abandoned the plastic transplantation of the trapezius in paralysis of the deltoid. He considers the operation both difficult and dangerous, and in one of his cases the flat transplanted trapezius became later rounded and slipped forward or backward in every abduction of the shoulder. He has more lately employed the following operation and reports its success in two cases. A transverse osteotomy of the humerus above the insertion of the pectoralis major allows the outward rotation or the lower fragment. The bone is allowed to heal with the arm in the elevated position in a

moulded (plaster of Paris) splint made before the operation. By this manoeuvre the pectoralis is brought under greater tension, which is diminished by elevation. The clavicular portion of the pectoralis takes the place of the deltoid, and although the child cannot lift heavy weights it can elevate the arm in a vertical direction.

Lange and Vulpius have both performed osteotomy of the humerus and outwardly rotated the lower fragment in cases of obstetrical paralysis.

Gallie[25] reports successful results, which he considers permanent, from the operation which he independently devised of retaining paralyzed feet in good weight-bearing position by fastening the paralyzed tendons as stays to the tibia or fibula. After the periosteum is divided by a linear cut a groove is made in the bone, the tendon drawn up to the proper tension and the periosteum sewn over it. A similar method was reported favorably by Codiville in 1900.

Spastic Paralysis. Werndorff,[26] in considering the indications for section of the posterior nerve roots in spastic paralysis believes that the elimination of the contractures represents the first and chief problem in treatment. This he is sure should always be done before Foerster's operation is considered, and he thinks that in most cases this will be sufficient. His conclusions are in agreement with those of Harris,[27] who has made a study of the end results of cases operated upon at the Children's Hospital in Boston. These were the results of tenotomies and myotomies and have been in the main most satisfactory. Foerster[28] himself now pleads for a very careful consideration of the indications before his operation is attempted. First, the pathological condition should be stationary or nearly so; second, sometimes it is a questionable method of interference after the condition has remained stationary for a long period (how long?); third, one must be very sure that the spasticity is not due to tumors, syphilis, or Pott's disease; fourth, the operation is of little value unless there is excellent mentality, since prolonged after-treatment and muscle training is absolutely essential. Foerster believes the operation less applicable to the arms than to the legs.

Obstetrical Paralysis. Lange[29] reports 17 cases of distortion of the shoulder joint and obstetrical palsy. Five of these he considers as real paralysis, twelve of distortion. The clinical pictures are similar. The x-ray showed in no case a dislocation. The main diagnostic sign is the pathognomonic position of the arm and limited function. He believes that the treatment should be carried out under these headings: 1. prophylaxis against contractures. In adults exercises; in children plaster of Paris bed with the arm outwardly rotated, and passive motions instituted. 2. In inveterate cases redressment under an anaesthetic (this up to one year). 3. In old cases (over one year) osteotomy of the humerus at the mid point and outward rotation of the arm.

(To be continued.)

Reports of Societies.

WORCESTER DISTRICT MEDICAL SOCIETY.

MEETING OF DECEMBER 10, 1913.

President, HOMER GAGE, M.D.; Secretary, ERNEST L. HUNT, M.D.

The secretary's report approved without reading. A communication from the Committee on State and National Legislation of the general society was read, and a local committee, consisting of Drs. Emerson, Duggan, Reed and Bragg, was nominated.

DR. WALTER E. BOWERS, in behalf of a committee of which Drs. Knight and Harrower were the other members, presented a memorial to Dr. Edwin Bayard Harvey. *Voted:* To file the memorial in the Year Book, and cause a copy to be sent to Mrs. Harvey.

DR. W. IRVING CLARK presented the report of the Committee on Public Lectures, outlining their plan for a series of lectures to be given on health subjects under the auspices of the society. He requested the advice of the society as to the program, place of meeting, and especially on the advisability of dealing with the sex question.

DR. HOMER GAGE: This matter is one of great personal interest to me. In the past the society as a body has not done as much work for the community as it might have. The questions presented by the committee are important, and I hope they may be decided rightly, and the committee empowered to carry out the plan. The location of the hall is important, and publicity is necessary in order to secure the first audience. I hope the members will express their opinions freely.

DR. T. E. MCEVOY: I doubt the advisability of presenting the last subject mentioned (Community Responsibility for the Prevalence of Venereal Disease). This is a difficult subject upon which to instruct the public, and would better be done in another way.

DR. A. C. GETCHELL: I move that we accept the report of the committee, with the understanding that the society is in favor of the scheme, and that it be referred back to the committee with power to act. Voted.

The president again called for an expression of opinion in regard to the presentation of the sex subjects. No one responding, the president said he thought that silence on the part of the members should be interpreted by the committee as implying doubt.

The president then introduced the speaker of the afternoon, DR. HOWARD LILIENTHAL, of New York City, author of a work on Imperative Surgery, surgeon to Mt. Sinai Hospital, frequent contributor to current medical literature, and announced his subject as

THE SUSPICION OF MALIGNANCY.

The speaker prefaced his paper* by saying that his treatment of the subject would perhaps be in

* See page 120 for paper in full.

more popular vein than strictly scientific, and expressed his hope for a free discussion of his paper. He also mentioned that a society had been recently organized calling itself The American Society for the Control of Cancer, with the object of educating the public on this subject.

DISCUSSION.

DR. HOMER GAGE: We have listened to an extremely interesting and timely paper, coming at a moment when a more determined and organized effort to instruct the public and the profession as to the need of early diagnosis and excision of cancer is under way. At present, all recognize that there is no cure except the knife. While promising work in various other directions is being done, it is yet too early to use any of them as a basis for general treatment. The new statistics of Dr. Lilienthal as to the frequency of cancer are most interesting to my mind, especially the uniformity shown in the figures obtained from different sources. No matter how the groups are subdivided, the general fact remains the same, which is proof to my mind that his figures do not lie. There is another important thing that I would like to add to what Dr. Lilienthal has said. There is a class of cases in which conditions exist which have been called by Bloodgood pre-cancerous. Such are the small ulcers appearing on the lips of elderly people, or small tumors of the breasts as certain cysts, which are prone to become cancer. Often we find in seemingly simple cysts little papillary projections, doubtless early manifestations of malignancy. This subject is urged upon the attention of all by the new association. I know that Dr. Lilienthal likes argument and hopes for a free discussion of his paper, which I am sure he will enjoy as we will profit by it.

DR. RAY GREENE: I recall how Dr. Lilienthal in undergraduate days disagreed with Dr. Fitz over a piece of liver. I have recently had several cases of sarcoma, which I treated with Coley's fluid, and had some correspondence with Dr. Lilienthal regarding that treatment. I would like to know his present opinion of that treatment.

DR. W. E. BOWERS: There always comes up in the mind of the surgeon the question of the necessity of a mutilating operation in early cases. Do not the fascia planes act as a dam to the progress of malignancy? Is there not a chance to do less severe operations if the cases are seen early? Many of us have seen these early cancers, in which the diagnosis has been proven by microscopic examination, removed by less extensive operation, fail of recurrence. This may be playing with fire. Will Dr. Lilienthal speak about that? We want him to feel that we are alive to this opportunity to learn of so high an authority.

DR. A. C. GETCHELL: The question of the frequency of malignant growths in adult women of apparently good health interests me. My opinion was recently asked by the librarian of our public library on a book by Brooks Adams called The Health Master. In the chapter on cancer the health master talks to a woman's club of sixty from the ages of thirty to sixty-five, telling them that eight of the number had cancer. The book states that some of the number looked queer, and in a few months eight had been operated on for cancer. While the author in his book has presented some true conditions, there are others which I know are not true. Is the proportion which he states correct?

DR. L. C. MILLER: What are we going to do with the patients whom we suspect to have cancer, and cannot prove it by ordinary examination? Special diagnostic procedures take time and tend to fasten the patient's attention upon the disease. What shall be our conversation to the patient? Are we to tell them our suspicions? Is it not better to leave them in the dark until we can confirm our diagnosis absolutely?

DR. M. F. FALLON: When I visited Mount Sinai Hospital Dr. Lilienthal was treating cancer cases by means of the x-ray and serums, and I would like his opinion on the value of that kind of treatment. Surgeons deserve great credit in trying to do away with operations. Perhaps one of the most prominent workers in this field is Fischera of Italy. He uses extracts of the human embryo in the treatment of inoperable cancer. No less an authority than Dr. William Mayo gives credence to the results which he has obtained, having been successful in a few cases. The rationale of this treatment is based on Cohnheim's theory of the origin of cancer,—that is, that it is caused by an irritant or injury. If this is true, embryonic cells are stimulated to invade the near-by tissues and run lawlessly. This constitutes cancer. Experiments show that at times extracts of healthy organs injected into healthy animals of the same species will destroy the same organ in that animal. Dr. Mallory has shown that an extract prepared from the scrapings of the stomach of a rabbit injected into another rabbit produces ulcer of the stomach, also solutions of the bile salts destroy the liver in the injected animal. Certain tumors in rats have been made to disappear by the injection of extracts from rat embryos. Fischera bases his work upon such facts as these. If it is true that the growth is due to lawless embryonic cells, then the injection of an extract of an embryo may cause the cessation of the development of the cancer. It is at least interesting to look into the investigations of such men.

DR. LILIENTHAL: I am glad that Dr. Gage spoke strongly of excision, and moderately in reference to other treatments. We have been deluged with such treatments as mesothorium and various serums with no success in the hands of many good men. It is probable that the x-ray, radium and mesothorium will cure superficial cancer by a destructive influence as efficacious as the knife. If I had an epithelium in the corner of my eyelid, I would go for x-ray treatment. But if I had a removable cancer inside of me, I would risk nothing but an operation. As for a precancerous stage, everyone who is ever going to have cancer is in a pre-cancerous stage. I should rather use the term a suspicious condition where one has a tumor that might develop into cancer. Do not temporize with chronic mastitis. I advise the removal of the entire mammary gland, without the muscles or lymphatics. Tell the patient she will lose the nipple. She will be satisfied when told that it is not cancer and never will be.

In reply to Dr. Bowers' question, when there is real cancer in the substance of the breast or connected with it, the best results are obtained with the more formidable operation; remove everything. This has been my uniform practice, and I have never regretted it. Some surgeons are satisfied to remove the fascia over the pectoralis major, but cancer is more apt to stand under the pectoralis minor. It is probably true that too much skin has

been sacrificed, a deep cancer being less apt to recur in the skin than anywhere else. Save enough to close the wound easily. This does not apply to large ulcerating growths.

To Dr. Greene's question in regard to Coley's fluid, I have some delicacy in mentioning it before the New York Society, and can never arouse a discussion. When I present patients who appear to have been cured, nobody says a word. When I ask why, they respond that a committee has investigated and decided that as many sarcomata get well without Coley's fluid as after its use. I was responsible for the postoperative use of Coley's fluid. I have a case operated on twelve years ago supposed to be a cyst of the chest wall involving the ribs, probably tubercular. At operation found it to be apparently sarcoma, and had a large piece out of the pleura before I knew it. The cut-end of the ribs had some of the growth in them. It is impossible to remove it completely. I gave an extremely guarded prognosis. Pathologist reported pigmented cell sarcoma. I gave Coley's fluid, and the tumor of the cicatrix disappeared. One year after an enlargement appeared. Again gave Coley's with again complete disappearance. I have presented this man three times before the New York Medical Society. In another case I removed part of the superior maxilla. Could not remove it all as the disease was so extensive. Closed it up, yet there was a hump on the left side of the nose remaining. In answer to the patient's inquiry, I said, "Oh, it is nothing. I will later clear it off." Gave Coley's fluid, and in a few weeks the tumor disappeared. Face assumed a natural appearance. This was a year ago. A week ago still appeared well. Pathologist's original report was malignant osteosarcoma. Now, he says, there were giant cells in it, and another pathologist also found them. Most giant celled sarcoma of the epulis type are nonmalignant. Such experience, however, makes me want to use Coley's fluid after every case. If I am doing wrong, my intentions are good.

Dr. Getchell's inquiry,—As to the frequency of cancer in ordinary adult women, I do not understand such a statement as he quoted from the Health Master. It seems as if they must have been cases of carcinophobia. Many people have moles, etc., which it is well enough to remove by operation. I do not believe any such number had cancer.

Dr. Miller,—As to what to tell the patient. I believe a patient suspected of cancer should have the benefit of every kind of examination. If the stomach, tell her that ulcer is very common, and that you want to find out if she has one. Tell another member of the family your real suspicion. One ought not to quiet the patient's mind until his own mind is quieted.

To Dr. Fallon,—I have tried the method of injecting patients with emulsions from the whole cancer, in the hope that it would act as a vaccine. I have had but eight cases. One had a recurrence. The others are not heard from. There is no doubt in my mind that some cases of cancer are cured without cutting. Whether it is a germ disease or not, it is certainly a disease of chemistry. The new born and embryos do not have sarcoma, though they may have other tumors. As the investigators do not know what part of the embryo prevents it, it was therefore rational to use the whole embryo. The thymus has been suggested as the preventive force, because it atrophies in later life. Rhodenberg has had cures with the thymus, both in extract and in feeding the whole gland.

A professional friend of mine brought his mother to me for cancer of the breast. I did a complete operation. Two years after it recurred, forming a tumor of the chest mall, a hard, red, elevated nodule about the size of a filbert. The patient had said nothing about it. Under local anesthesia I removed all I could, and found it bound down to underlying bone. A microscopic examination showed that this was a carcinoma of the same type as the parent tumor. The son then took the case into his own hands. Dr. Rhodenberg furnished the thymus extract. The wound healed, and the patient is well now, but other cases have not recovered. Dr. Carrel agrees that it is a good and tenable theory. The blood of the infant may have some substance that rejuvenates and prevents the cancer getting hold.

FRANKLIN COUNTY DISTRICT MEDICAL SOCIETY.

The bi-monthly meeting of the society was held in Greenfield, January 13th. A letter was read with reference to a bill now before the legislature regarding the revelation of professional secrets in court on the part of physicians and nurses. The suggestion offered was that the words "not be urged" should be changed to "not be compelled." Dr. G. P. Twitchell of Greenfield read a paper on the Treatment of Gastric Ulcer. The paper was discussed by Drs. H. G. Stetson and Charles F. Canedy of Greenfield and by Dr. Philbrick of Northfield. Dr. Paul W. Goldsbury of Warwick read a paper on Observations on the Sense of Smell, and gave a demonstration.

Book Reviews.

The Treatment of Rheumatic Infections. Press of Parke, Davis and Company.

This monograph is a statement of the case for phylacogen treatment of the so-called rheumatic arthritides.

Forty-Fourth Annual Report of the State Board of Health of Massachusetts. Boston: Wright and Potter Printing Company. 1913.

This volume records the official activities of the Massachusetts Board of Health for the fiscal year ended Nov. 30, 1912. The general report particularly discusses progress made in antityphoid inoculation, in the knowledge and control of poliomyelitis, and ophthalmia neonatorum, and the maintenance of isolation hospitals by cities or towns. Among the recommendations for the new year may be mentioned the need of a central authority to supervise tuberculosis in Massachusetts. The remainder of the volume consists of supplementary special reports on water supply, sewerage, food and drug inspection, cold storage, slaughtering, dairies, plumbing and other works in hygiene, with papers by members of the board, and tabulated statistics.

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THE MASSACHUSETTS BOARD OF HEALTH.

THE inaugural message of Governor Walsh devotes some attention to public health. That part of his message is as follows:—

"There is no more important function in the government than to care for and protect the public health. In the earlier development of the country this truth was not so well recognized; but Massachusetts is entitled to the credit of having led the way among the Commonwealths in the establishment of a State board to safeguard the health of its people. Public health questions in this State were first considered by a commission appointed in 1849, and in 1869 the State Board of Health was created. Down through the intervening years the board has not only led the way in the study of health problems, but has secured the enactment of a body of health laws which have been the model for legislative action in other States.

"Changes in conditions and the great increase in the volume of work of the board would now seem to demand such a reorganization of this department as would place it among the paid boards, with an executive officer armed with authority and charged with the responsibility of supervising the administration of the health laws of the State. With this in view, I recommend the establishment of a salaried Board of Health, with a health commissioner appointed by the board and subject to the approval of the governor. Provision should be made for sufficient salary for the health commissioner to insure the services of a man of training and capacity to fill this important position, probably the most important in the public service of the Commonwealth. The salaries of the members of the board, whose duties would be largely advisory, need be little more than nominal, because the experience of the past demonstrates that men of commanding ability in the study of health problems will give of their time and service to the State."

The praise of Governor Walsh for the Massachusetts Board of Health is richly deserved. The bulletins of this board have been accepted as models not only for other States, but for the United States Public Health Service. Some of the many achievements of the State Board of Health have been the production and the free distribution of diphtheria antitoxin and smallpox vaccine at a time when such a step was regarded as socialistic. Practitioners in the State have never failed to secure a sufficiency of diphtheria antitoxin in an epidemic. The advertisements of anti-diphtheritic sera do not allure the physicians of Massachusetts, because reliable antitoxin is prepared and furnished by the State Board of Health. Recently the Board of Health has prepared and distributed free typhoid vaccine for immunization against typhoid fever, and in its campaign against infantile blindness it has furnished silver nitrate to all practitioners. Among the many investigations of the State Board of Health, there come to mind the classical studies on the filtration of water supplies and the more recent studies which led to the discovery of the insect that may play a part in the transmission of poliomyelitis. These are but a few of the accomplishments of a board that Governor Walsh so justly praises.

The Governor believes, and others share his belief, that the prodigious advances in the nature, causes, prevention and control of disease necessitate a new machinery for the State Board of Health. In his recommendations he has suggested a reorganization somewhat similar to that undertaken in New York, and gives a bare outline in his message. He believes in a single highly-paid commissioner of health, with an advisory board, whose members are to be paid a nominal salary. At present the entire authority is vested in a board the members of which are unpaid. The executive officer is the secretary of the board and derives his authority from the board. All matters of importance are decided by the board, of which the active executive officer is not a member. In his subordinate capacity the secretary may act only as the delegate of the board; he cannot speak with the authority of the official state health department. At times it has happened that difficult problems

have had to await the meeting and action of the board before authoritative action could be taken.

We believe that there is much to be said in favor of the recommendation of Governor Walsh. The details of the suggested reorganization need careful consideration and will be discussed in these columns in the near future. We believe that everything concerning the State Board of Health, its policies, its organization, its personnel, is of vital importance to the medical profession of the State. Before any change from the present machinery of the health force of the State, which has served so long and so creditably, is put into effect, all phases of health administration must be carefully surveyed.

The State Board of Health depends for its usefulness upon the support and coöperation of the rank and file of the medical profession throughout the State. It must in the future, as it has in the past, assume a wise leadership over the physician in matters of public health.

The medical profession, which is the actual exponent of all health activities, should manifest no slight interest in any suggested reorganization of our State Board of Health. It is the privilege and duty of the physicians of Massachusetts to make themselves heard in this important matter.

MEDICAL LEGISLATION. THE PRACTICE OF MEDICINE AND DENTISTRY.

THE State of Massachusetts, whose position on most public questions has always been an advanced one, has been singularly behind some of her sister states in her attitude toward legislation for the regulation of the practice of medicine and dentistry. It is one of the few states at the present time that will license a dentist or a physician who possesses no evidence of having graduated from an institution chartered to grant a diploma for efficiency in either of these two professions. She is one of the small number of states that permits its governor to appoint the boards of registration for the qualification of candidates who must pass the state board examinations before they may practice, thus making these boards under the influence of politics to just the extent that the incumbent of the governor's office is subservient to political influences.

The opposition to legislation looking to the betterment of the practice in dentistry and medicine and the safeguarding of the health interests of the public has come not only from those whose personal and pecuniary interests have been involved, but to a certain extent from those obsessed by the idea that legislation restricting the practice of these professions to those coming up to the prescribed standards of ethical and educational qualifications would be an infringement upon the rights of personal liberty. The bulk of the opposition is, of course, from those who could not meet increased educational requirements and are possessed of no ethical standards.

It is very desirable that this state should emancipate itself from a position so highly unsuited to its record in other matters. State pride ought to operate to accomplish this, even if there were no better reasons. In the issue of the JOURNAL for Jan. 1 (Vol. clxx, p. 24) we commented at length editorially on pending medical legislation relative to the practice of dentistry in Massachusetts. The bill proposed for enactment this year by the Massachusetts Civic League relative to the practice of dentistry is one, which, if passed, will go a long way toward putting the state in a position in accord with her importance as a progressive leader in legislation for the welfare of her citizens. Its passage, practically as it stands, should be favored by every one having at heart the betterment of conditions surrounding the practice of dentistry. The physicians and dentists of all sections of the state should take the trouble to enlighten their senators and representatives with respect to the importance of the enactment of right legislation in this respect, and there would then be no difficulty in getting a proper statute upon the books. This bill does not go as far as it should, in our opinion, in correcting the danger of political domination of appointment to the Board of Registration. It would be better that the governor should be provided with a list of available competent men, selected by the state dental societies, and that from this list he should make the prescribed appointments and fill any vacancies. This is the way the matter is managed in a good many states.

The second section of the bill deals with the matter of what shall constitute an acceptable dental school so far as time spent in study is concerned, and also with rules governing the licensing of graduates of dental schools by the registration board and the procedure to be fol-

lowed when a dentist desires to change his residence and practice to another state.

The third section deals with the penalties attached to practicing without proper licensure or under false colors. It also deals with the question of dental assistants. Last year an effort was made to secure such legislation as was necessary to establish this order of dental assistants. It was defeated by the attitude of the state board toward the measure, as well as by the opposition of those who thought their interests were being jeopardized, or who imagined they saw in the bill a portal of entry for those who, without any adequate training in dentistry, would attach themselves to "dental parlors," and do a poor grade of work. This year's bill has been improved in this respect by abundant safeguarding of those features that doubts were expressed about in last year's Dental Nurse Bills, so that there would now seem to be no excuse for not enacting this very beneficial piece of legislation. In a bill that promises to furnish a better dental law than we at present have, it is extremely desirable that there should be no provision which cannot be enthusiastically supported by a united dental profession. It should not carry any provisions the import of which is not clear, in the hope that it may go through as a rider.

Such attempts would jeopardize the passage of the bill, the main provisions of which outweigh in importance the possible good resulting from the passage of the rider. In the proposed bill the clause referring to the dental assistant is a very important clause, though not given much prominence in the text of the bill. Dental prophylaxis cannot be carried out unless some provision is made whereby both in private practice and in public clinics the necessary attention can be furnished. The modern expansion of the technic of dental and oral surgery takes all the time and skill of the dentist, and some help must be given him to enable him to meet the demands of the prophylactic side of his work, which must otherwise be neglected, to the detriment of the public. It is more feasible to have the grade of skill required for this department of dental work provided by the dental assistant, who should be licensed and, before being licensed, sufficiently trained so that she (or he) may use such instruments and perform such technic in the mouth as is necessary to accomplish the purposes for which they are licensed. Exactly what the dental assistant may be permitted to do should be even more specifically outlined than it is in the present bill, and any evasion of the provision which makes it imperative that their work should be done under the supervision of a registered dentist should be punishable by an immediate revocation of the license. The penalty for improperly engaging in dental practice by such a nurse or assistant would then be at the door of those entrusted with the proper enforcement of the laws governing the practice of the dental profession.

Dental charlatans with a dental degree, obtained without proper qualification, should not be tolerated. No one else would make any improper use of such assistants, and without improper registration of dentists there would be no danger of the establishment of so-called "dental parlors," where work detrimental to the public and the dental profession might be carried on. Therefore provision should be made that these assistants before being registered should prove by practical tests their mastery of the necessary technic. Through her activities dental prophylaxis may not only actually be carried out by those who will come often enough to their dentist to have their teeth properly cleaned, but an educational campaign on the home care of the teeth might be launched.

Section four deals with the revocation of licenses and the redress that may be had by one who considers himself aggrieved in this respect.

Section five imposes fine or imprisonment or both as the penalty for practising without license or employing an unlicensed dentist (not a dental nurse) as an assistant.

A great deal has been said of late apropos of the importance of a clean mouth. The relation of work of this sort to the health of the community, and particularly in regard to the health of school children is receiving much emphasis. There is, however, a tendency to go to extremes in this matter. Too much should not be claimed. The mouth is simply one of the portals of entry for infections detrimental to the human economy. Infections are only one of the sources of human illness. The support which a reasonable presentation of these claims might attract to this bill should not be sacrificed by the exploitation of unsubstantiated theories on the part of those whose horizon is limited by the walls of the bucal cavity. The possibilities of harboring infections and contagious diseases, the causation of many constitutional infections, such as arthritis, nephritis, Riggs' disease, etc., though not

playing a common rôle in the first two instances at least do, without doubt, cause in some cases a disastrous train of sequelae. Of equal importance with the occasional occurrence of the above-mentioned systemic disturbances traceable to the mouth and teeth are the many indefinite and intangible consequences of dental caries whose effects are manifested in digestive disturbances, poor nutrition, and lack of assimilation of food because of faulty mastication. In these ways the maximum of efficiency of individuals may be kept below par to such an extent that they cannot play their full part in the world's work. It would seem that a measure looking to the raising of the standards of efficiency of her citizens should make a strong appeal to the legislators of the state.

It is to be hoped that this year's general court will carefully consider these features of the Dental Bill when it comes before them, and give Massachusetts an act regulating the practice of this profession of which she need not be ashamed.

THE HELPFUL UNFIT

ONE of the newest and most propitious experiments for the solution of the problem of industrial waste, is the chance afforded feeble or partly disabled or convalescent people in hospitals and asylum workshops to support themselves by doing useful work. Both in this country and abroad there have been successful attempts to find work for people unable, under the present system of production, to gain all they need for a livelihood. The prospect is promising that knowledge will be gained which will mean changes in charity methods sufficient to encourage self-reliance and efficiency in many disheartened workers.

Thus far such experiments have proved the decided money value of such work, done despite obstacles. Supplies worth many thousand were produced the summer past by patients on the hospital farm at the State colony at Gardner, Mass. A pottery established within two years in connection with a hospital on the Pacific Coast has enabled tuberculous girls to pay their expenses under sanatorium treatment and to learn a self-supporting trade. The men admitted to the Otisville Sanatorium of the New York City Health Department are required to do such work in and about the institution as they are fitted and able to do and as is salutary for them; and they are much better off thus occupied. Five patients in an Eastern hospital last year made and sold $6,000 worth of pottery. At the Bedford Sanatorium for consumptives of the Montefiore Home in New York, vegetable gardening is done by the patients, sufficient at least for the needs of that institution. Feeble-minded patients under Dr. Fernald and Dr. Tuttle at the schools and hospitals at Waverley, Mass., under Dr. Laehr at the Hans Schoenow Hospital in Berlin, Germany, and in other places where craft work has been instituted, have made an excellent showing.

In this connection should also be mentioned the work done by Dr. Herbert J. Hall of Marblehead, Mass., in the treatment of patients through systematized work. The accomplishments of this institution in connection with various forms of handicraft are very definite and indicative of the possibilities of such systematized activities wherever the handicapped may congregate.

Such workers are not expected to be trained in this way for success in the more skilled trades; but certainly they can be taught the more simple arts of hand-weaving, metal-working, pottery-making, and cement working. Men and women thrown out of employment in a particular trade because of some special unfitness are by no means of no service at all. The unfeeling should have no right to speak of them as human derelicts, "fit only for the scrap heap." The problem, states the *New York Evening Post*, is to find and organize the sick and discarded workers, teach them work that they can do, and so by grading work to their ability, restore to them their self-respect and their sense of having a recognized place in society. Those who have been studying the experiments under way are predicting a system of labor supplementary to the present system of regular industries which involves so much waste. The burden of supporting the sick and idle will become too heavy, they assert; and then will be devised some general social policy of training the imperfectly fitted people, now often allowed to throw away their lives in sadness and neglect, to use what productive power they have for themselves and the community in which they live.

It should finally be remembered that the work of the physically and even mentally handicapped may often through previous training be of a far finer quality than that of the average so-called well person and that this is an asset to which the state and the community should give due regard.

MEDICAL NOTES.

SMALLPOX ON THE "OHIO."—Report from Washington, D.C., states that there occurred on Jan. 8 the fourth death from smallpox in the epidemic of that disease aboard the battleship *Ohio*.

THE "NEWARK" AS A QUARANTINE VESSEL.—It is announced that the United States second class cruiser *Newark*, now stationed at Guantanamo, Cuba, is to be transferred from the Navy to the Public Health Service, and will be placed at Providence, R. I., to serve as a quarantine vessel.

AN IMPORTANT MEDICAL AFFILIATION.—It is announced in *Science* that the Cleveland (Ohio) City Hospital is to become affiliated with the medical school of Western Reserve University. The sum of $1,000,000 has recently been raised for the further endowment of the school.

"The agreement which will be entered into by the city and the university will provide that all members of the visiting staff of the City Hospital shall be nominated by the trustees of Western Reserve University upon recommendation by the faculty of the school of medicine. The visiting staff will have absolute authority over the professional treatment of all patients of the hospital. The director of public welfare will be the administrative head of the hospital. The university will have all teaching and research privileges."

BRITISH MEDICAL NEW YEAR HONORS.—Relatively few medical names appear this year on the list of New Year honors in England. Sir Christopher Nixon, M.D., a former president of the Royal College of Physicians of Ireland, is made a member of the Irish Privy Council. The only new medical baronetcy is conferred on Dr. Sir Thomas Joseph Stafford, medical commissioner of the local government board in Ireland. Knighthood is conferred on Surgeon-General A. T. Sloggett, R.A.M.C., director of the British Army Medical Service; on Dr. T. B. Nariman, of Bombay, physician to the Parsi Lying-in Hospital in that city; and on Dr. Harry Brookes Allen, professor of pathology and dean of the medical faculty in the University of Melbourne. Sir Rickman Godlee, president of the Royal College of Surgeons of England, is promoted Knight Commander of the Royal Victorian Order.

FRENCH AND SWISS MORTALITY STATISTICS.—The mortality statistics of France for 1911, published this month in Paris, show a total of 775,088 deaths, as against 704,770 in 1910. Of these, 86,113 were caused by tuberculosis, 31,768 by cancer (as against 27,306 from the same cause in 1906), and 29,470 by the epidemic infections. In Paris in 1911 the tuberculosis death-rate was 380 per 100,000, that of Boston in 1910 being 175. It is noted that in 1861 there were but 50 lepers in Paris. There are now about 300 in that city, and 300 more in the rest of France. A commission has been recently appointed by the ministry of the interior to investigate this alarming increase.

In Switzerland the total death-rate has varied little in the past fifteen years. In 1899 it was 25.9 per 1000 in Berne, 21.9 in Basle, and 20.9 in Zurich. In 1907 the rates were 27.7 in Berne, 21.2 in Basle, and 16.8 in Zurich.

BOSTON AND NEW ENGLAND.

BOSTON DISTRICT HOMEOPATHIC MEDICAL SOCIETY.—At the annual meeting of the Boston District Homeopathic Medical Society, held in this city recently, the principal address was by Dr. Stephen H. Blodgett, the retiring president, on "The Press, the Public and the Medical Profession." The officers elected for the coming year are Dr. Orville R. Chadwell, president; Dr. Conrad Wesselhoeft, secretary; and Dr. Edwin W. Smith, treasurer.

COMPARATIVE NEW ENGLAND DEATH-RATES.—The comparative death-rates of five of the New England states in 1913 were as follows: Rhode Island, 15.4 per 1000; Massachusetts, 14.7; New Hampshire, 13.6; Maine, 12.6; and Vermont, 12.2. It will be observed that these rates are approximately proportional to the density of population in the respective states.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—At the regular January monthly meeting of the Boston Milk and Baby Hygiene Association, statistics were presented showing that during the year 1913 the Association cared for 3421 babies, as against 3021 in 1912, an increase of 13%.

HOSPITAL BEQUESTS.—The will of the late Alfred Jones, who died at Boston on Jan. 8, was

filed on Jan. 13 in the Suffolk probate court. It contains bequests of $1000 each to the New England Hospital for Women and Children, Boston; the Corning (N. Y.) Hospital; and the Women's Medical College, Philadelphia.

NEW YORK.

AMERICAN COLLEGE OF SURGEONS.—The board of regents of the American College of Surgeons held a meeting on Jan. 9 at the Waldorf-Astoria, the purpose of which, in addition to the transaction of routine business, was, as stated by Dr. John B. Murphy of Chicago, to discuss ways and means of advancing interest and opportunity in higher education in surgery, and to take steps for the provision of a home for the college, so that the stimulation of this uplift plan may be more effective over the entire country. At the meeting the names were ratified of 1,000 surgeons who were proposed as fellows of the college at its first meeting at Chicago in November last.

MONEY FOR ORTHOPEDIC DISPENSARY.—At a concert given at the Waldorf-Astoria on Jan. 9 the sum of $5,000 was raised for the New York Orthopedic Dispensary and Hospital.

MORTALITY STATISTICS.—The weekly reports of the Health Department show that the mortality in the city during the month of December represented an annual death-rate of 13.33, as against 12.64 in November and 14.21 in December, 1912. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from measles increased from 6.25 in November to 9 in December; the weekly average from scarlet fever, from 4 to 5.25; from diphtheria and croup, from 19.75 to 22.75; from influenza, from 4.25 to 7.25; from acute bronchitis, from 13.75 to 15.25; from pneumonia, from 81.75 to 107; from bronchopneumonia, from 82.25 to 85; from cancer, from 81.25 to 83; from apoplexy and softening of the brain, from 19.75 to 23.25; from organic heart diseases, from 192.5 to 208; from hernia and intestinal obstruction, from 10.25 to 15.25; and from Bright's disease and acute nephritis, from 107.5 to 113.25. Among the diseases in which there was a decrease in mortality were the following: The weekly average of deaths from typhoid fever decreased from 13.25 to 6; from whooping-cough, from 4 to 2.5; from epidemic cerebrospinal meningitis, from 4.25 to 2.75; from pulmonary tuberculosis, from 159.5 to 157.25; from diarrheal diseases under five years, from 41.5 to 31.75; from appendicitis and typhilitis, from 10.25 to 9.75; and from puerperal diseases, from 11.75 to 9.25.

HONORS FOR DR. H. M. BIGGS.—The Board of Health recently adopted resolutions complimentary to Dr. H. M. Biggs, on the occasion of his retirement, and appointed him a member of the Medical Advisory Board, honorary general medical officer of the Department of Health, and medical adviser to the Otisville Tuberculosis Sanatorium.

PHYSICAL EXAMINATION OF CHILDREN.—The Health Department reports that in the appropriation for the division of child hygiene for 1913 was included an item of $10,000, to be expended by the division in extending to the child-caring institutions of the city the same system of physical examination of children as was provided for in the public and parochial schools. There are 63 of these institutions in the different boroughs of the city, and five medical inspectors, under the direction of a chief inspector, were assigned to this duty. From March 29 to Oct. 18, 14,697 children were examined, and of these, 6,486 were found to be normal, and 8,211 suffering from one or more physical defects. In general, the proportion of defects noted is about the same as that found among the children in the schools, an exception being noted in the case of defective teeth; owing, without doubt, to the greater attention paid by the institutions to defects of nature. The percentage of defective teeth among the institution children was 38, as against 49% among the children in the public and parochial schools. In October these children were all re-examined to determine whether the treatment provided had had the desired result, and it was found that 2,730, or 44%, were entirely cured; 1,868, or 30%, were improved; and 1,593, or 25%, remained unimproved. Considering the brief period elapsing between the original examination and the re-examination, the proportion of children cured is regarded as remarkable, and indicative of what may be accomplished in safeguarding the health of children when it is possible to apply direct and prompt attention to their needs.

BOTANICAL GARDEN.—At the annual meeting of the managers of the New York Botanical Garden, Bronx Park, on Jan. 12, Dr. W. Gilman Thompson was elected president, to succeed the late Judge Addison Brown. Among the new managers elected was Dr. Lewis Rutherford Morris, and Dr. W. L. Britton was re-elected secretary. Dr. Britton reported that during the past year $116,395 had been received, bringing the total permanent fund of the corporation up to more than $520,000, and that the committee in charge of the work of collection had been instructed to continue its efforts until the fund had reached $1,000,000. The object of the fund is to permit further expansion of the educational and scientific work of the institution, the increase of its collections, and the additional ornamentation of its grounds.

MEDICAL SOCIETY OF THE BRONX.—The borough of the Bronx having been made one of the counties of the State, a county medical society has now been organized to take the place of the Medical Society of the Borough of the Bronx. Dr. N. B. Van Etten, who was recently president of the latter and who is chairman for the borough of the Bronx in the Medical Association of the Greater City of New York, was elected president of the new society.

FISH CANCER.—Dr. H. H. Gaylord of Buffalo, director of the State Institute for the Study of Malignant Diseases, has just made to Governor Glynn the report of a special study which reveals the fact that fish in the State hatcheries, in common with those in most of the other cultural stations where species of the salmon family, including trout, are kept for breeding purposes, are more or less infected with cancerous disease. He has reached the conclusion that what is known as gill disease or endemic goitre is really a malignant growth, and his investigations have convinced him that the affection is caused by a specific micro-organism. It has been successfully transmitted to dogs and rats, but it would appear that he has never succeeded in transplanting the tumors from one fish to another; nor, in his experience, has the disease ever been transmitted directly from infected to healthy specimens. Certain specimens have been found to possess an almost complete resistance to the disease, while spontaneous recovery occurs in a considerable proportion of cases.

Current Literature

MEDICAL RECORD.

JANUARY 3, 1914.

1. WAGNER, C. *The New York Laryngological Society.*
2. DELAVAN, D. B. *Laryngology in New York.*
3. THACHER, J. S. *Unresolved Pneumonia.*
4. VINCENT, W. G. *Acute Appendicitis in Infancy and Childhood.*
5. DRUECK, C. J. *Genital Fistulae in the Female.*
6. BURROWS, E. C. *Uses and Abuses of Salvarsan and Mercury in Syphilis.*
7. *PRENDERGAST, F. A. *Effect of Typhoid Vaccine on Sugar Output in Diabetes.*
8. LEGIARDI-LAURA, C. *Subpectoral Abscess. Report of a Case.*
9. ROMEO, P. *Refrigeration with Ice in the Treatment of Intercostal Neuralgia.*

7. Prendergast, impressed by the diminution of glycosuria which he had observed in diabetics during the course of typhoid fever, tested the effect of typhoid vaccine in four cases of diabetes, all of which were on a regular hospital diabetic diet when inoculations were begun. His results in two cases were striking, in the other two inconclusive. The number of cases is, of course, too small to draw inferences from, but they suggest an interesting field for further study.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 3, 1914.

1. FREUDENTHAL, W. *Why Is Nasal Catarrh so Prevalent in the United States?*
2. DAVIS, G. G. *Treatment of Poliomyelitis by Operative Measures.*
3. CLARK, L. P., AND CALDWELL, E. W. *The Sella Turcica in Some Epileptics.*
4. MAYS, T. J. *Alcoholism in Relation to the Heredity of Epilepsy, Consumption, and Other Nervous Diseases.*
5. CUMSTON, C. G. *The Treatment of Traumatic Rupture of the Urethra.*
6. GEYSER, A. C. *Why Electrotherapy Does Not Cure.*
7. SHALET, L. *The Diagnosis of Early Clinical Pulmonary Tuberculosis.*
8. GOODNER, R. A. *Prevention of Insanity.*
9. STEINER, S. *Mixed Chancre.*
10. WISE, F. *Röntgen Rays in Eczema of the Hands.*
11. COLE, R. *Pneumococcus Infection and Lobar Pneumonia.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 3, 1914.

1. *CANNON, W. B. *Early Use of the Röntgen Ray in the Study of the Alimentary Canal.*
2. *ROSANOFF, A. J. *A Statistical Study of Prognosis in Insanity.*
3. *MAYER, E. M. *The Intranasal Treatment of Dysmenorrhea, with a Report of Ninety-Three Cases.*
4. SILER, J. F., GARRISON, P. E., AND MACNEAL, W. J. *Pellagra: A Summary of the First Progress Report of the Thompson-McFadden Pellagra Commission.*
5. FOWLER, H. A. *Closed Tuberculous Pyonephrosis.*

6. PIERSON, R. H. *Gastric Ulcer from Overworking the Stomach.*
7. MACFARLAN, D. *Notes in the Study of Potassium Mercuric-Iodid.*
8. DUBOIS, P. L., NEAL, J. B., AND ZINGHER, A. *Experimental Studies in Poliomyelitis.*
9. HOLM, M. L., AND HIMMELBERGER, L. R. *The Quantitative Determination of Albumin in Sputum With Potassium Ferrocyanide.*
10. NICHOLS, J. B. *The Diet in Gastric Ulcer and Hyperchlorhydria.*
11. *BURR, C. W. *The Foreign-Born Insane. A Racial Study of the Patients Admitted to the Insane Department of the Philadelphia General Hospital in Ten Years* (1903-1912).
12. COHEN, S. S., AND SOEPP, R. M. *A Case of Multiple Serositis and Report of Necropsy.*
13. LANDIS, H. R. *Signed Consent to a Necropsy a Condition to Admission to Our Hospital. Ten Years' Experience in the Phipps Institute of Philadelphia.*
14. GUTHRIE, J. B. *Cough-Dilatation Time a Measure of Heart Function.*
15. TEN BROECK, L. L. *A Rapid Method of Isolating Pathogenic Streptococci from Contaminated Fields.*
16. CARMICHAEL, F. A. *Chronic Malignant Degeneration of the Thyroid With Report of a Case.*
17. SIMONS, I. *A Case of Patent Ductus Arteriosus (Botalli). With Report of a New Physical Sign.*
18. FLAGG, P. J. *A Previously Unemphasized Feature in the Construction of Nitrous Oxid-Oxygen Ether Apparatus.*
19. JAMIESON, W. R. *Report of a Case of the Maculotubercular Form of Leprosy.*
20. PRATT, J. P. *Apparatus for Intratracheal Insufflation.*
21. LORENZ, W. F. *A Buret for Intraspinous Medication.*
22. FISK, T. L. *Safeguarding the Ether and Chloroform Bottles.*
23. BASS, C. C. *An Improved Diphtheria Culture Tube.*
24. MACE, L. S. *Apparatus for Artificial Pneumothorax.*
25. PLACE, R. W. *An Improved Ear-Speculum.*
26. MCGRATH, B. F. *A Simple Instrument for Transfusion.*

1. Cannon's article is a very interesting historical review of this subject.

2. Rosanoff finds that death is the typical termination for patients with senile psychoses, general paresis and cerebral arteriosclerosis, discharge from institutions for alcoholic psychoses, psychoses related to dementia praecox and manic depressive psychoses, and continued residence in the institution for dementia praecox and paranoiac conditions. Of those recovering, the average duration of treatment is about ten months. About 20 per cent. of the cases discharged to self or relatives are readmitted within five years.

3. Mayer describes the tuberculum septi and the anterior portion of the inferior turbinate in either side of the nose as "genital spots" and claims from 50 to 75 per cent. of relief from dysmenorrhea of patients treated with applications of trichloracetic acid to these spots. Applications four times at intervals between menstruation are usually sufficient to obtain lasting results.

4. This report finds that the supposition that the ingestion of good or spoiled maize is the essential cause of pellagra is not supported by study of the conditions. Pellagra is in all probability a specific infectious disease communicable from person to person by means at present unknown. No evidence was discovered to incriminate flies of the genus simulium, except their universal distribution throughout the area studied. If it is distributed by a blood-sucking insect, stomoxys calcitrans would appear to be the most probable carrier. The inclination is to regard intimate association in the household and contamination of food with the excretions of pellagrins as possible modes of distribution of the disease.

11. A foreign-born population of 24.7 per cent. in American cities supplies 44 per cent. of the indigent insane. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

JANUARY, 1914.

1. KLEBS, A. C. *The History of Medicine as a Subject of Teaching and Research.*
2. ROHRER, C. W. G. *John Hunter: His Life and Labors.*

THE LANCET.

DECEMBER 13, 1913.

1. WILSON, S. A. K. *Some Common Errors in the Diagnosis of Nervous Disease.*
2. *FREYER, P. J. *Cancer of the Prostate.*
3. *MORLEY, J. *Jackson's Pericolic Membrane: Its Nature, Clinical Significance and Relation to Abnormal Mobility of the Proximal Colon.*
4. HOWARD, R. A *Method of Removal of Carcinoma of the Prostate (Abdomino-Perineal Complete Prostatectomy).*
5. ROSENOW, E. C., AND COOMBS, C. *The Myocardial Lesions of Rabbits Inoculated with Streptococcus Viridans.*
6. *CLARK, H. *Tuberculosis Statistics: Some Difficulties in the Presentation of Facts Bearing on the Tuberculosis Problem in a Suitable Form for Statistical Purposes.*
7. WOODWARD, H. M. M., AND CLARKE, K. B. *Notes on Three Cases of Glanders.*

2. Freyer discusses the symptoms, physical examinations and treatment of cancer of the prostate. He presents eight cases in detail.

3. Morley discusses the etiology and nature of the pericolic membrane first described by J. N. Jackson in 1908 as "a transparent membrane extending from the parietal peritoneum of the right flank across the front of the ascending colon to its inner side and continuous above with the transverse mesocolon." The membrane, according to Jackson, is not an adhesion in any sense. Morley considers that this membrane is congenital in origin and presents six cases which confirm this view. In each of these cases, one as young as five months and another eight years, the nature of the membrane was the same. In addition, in each one of these cases there was a persistence of the ascending mesocolon with resulting abnormal mobility of the cecum and ascending colon. These points Morley discusses as to their embryological origin and as found in monkeys. Unless this membrane causes symptoms it should not be divided.

6. Clark discusses the difficulties in presenting fair and just statistics in tuberculosis work. The paper is short and hardly suited for review but is none the less of distinct importance to all interested in this subject. Among other interesting points the writer suggests that among sanatorium failures should be classified all those who could not be persuaded to go to the sanatorium at an early stage and only applied when a cure was impossible.

[J. B. H.]

DECEMBER 20, 1913.

1. *MAKINS, G. H. *The Bradshaw Lecture on Gunshot Injuries of the Arteries.*

2. *LANGMEAD, F. *On the Diagnosis, Prognosis and Treatment of Sydenham's Chorea.*
3. *GWATHMEY, J. T. *Oil-Ether Anesthesia.*
4. WARNER, F. *Development of the Pharynx by Muscular Exercises after Operation for Adenoids, with Special Reference to Feeble-Minded Children.*
5. RAINSFORD, F. E. *On a Fatal Case of Pellagra in an Insane Patient.*
6. BRUCE, L. C. *The Use of Vaccines Graduated by Their Opacity.*
7. KERR, W. S. *Cancer of the Tongue and Larynx Removed by Operation.*
8. PAGE, C. M. *The Repair of the Flexor Tendons of the Hand.*
9. SURVEYOR, N. F. *A Case of Rat-Bite Fever Treated by Neosalvarsan.*

1. Cf. *British Med. Journal*, Dec. 20, 1913.

2. This is a good practical discussion of the diagnosis, prognosis and treatment of chorea. Under treatment he discusses diet and medicinal treatment and lays special emphasis on the need of careful supervision when the acute symptoms have subsided.

3. Gwathmey claims the following advantages for oil-ether anesthesia. (1) apprehension is relieved by doing away with an ether cone or mask; (2) no expensive apparatus is required; (3) after-effects are reduced to a minimum; (4) more complete relaxation is secured: (5) the limits of safety are widely extended compared with other methods; (6) a more even plane of surgical anesthesia is anatomically maintained than is possible by the inhalation method. He has demonstrated these preparations in about 100 cases, the ages ranging from 4 to 71 years. He reports in detail on five cases. The method is especially indicated in lung surgery and operations on the head and throat. It is contraindicated in those cases, with the exception of lung cases, in which ether is contraindicated and also in operations on the anus, rectum, etc. He discusses the physiology of this method, which is of great importance to understand clearly. Strength of the ether and oil solution varies from 50% in young children to 75% in adults. One ounce of solution is used for every 20 pounds of body weight. Details of solution, pulmonary medication technic and apparatus are described in the article.

[J. B. H.]

DECEMBER 27, 1913.

1. *WEST, S. *The Purvis Oration on Some Points in the Diagnosis and Treatment of Granular Kidney.*
2. DUNN, P. *Concussion Cataract: Its Medico-Legal Aspect; with Notes of an Unusual Case.*
3. FARRANT, R. *The Relation of the Thyroid to Antitoxin.*

1. West discusses in a clinical way, the subject of granular kidney. His classification of "large white kidney," "contracting white kidney," "contracted white" and "contracted red kidney" seems hardly based on scientific grounds and detracts from the value of the article.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

DECEMBER 13, 1913.

1. MURRAY, G. R. *The Clinical Significance of Spontaneous Hemorrhage as an Early Sign of Disease.*
2. *WILSON, H. W. *The Early Diagnosis and Operative Treatment of Carcinoma of the Cervix.*
3. *MACALISTER, C. J. *The Influence of Venereal Diseases.*
4. STRANGEWAY, T. S. P. *The Work of the Cammidge Research Hospital.*
5. HALL-EDWARDS, J. *The Significance of Phleboliths.*
6. ELWORTHY, H. S. *Appendicectomy in General Practice.*
7. VICKERY, D. H. *Intestinal Obstruction Due to a Case of Worms.*

2. Wilson, discussing carcinoma of the cervix of the uterus, first considers the clinical types of disease and their method of spread. Among the difficulties of early diagnosis he discusses those due to the character of the disease—its painlessness and insidious onset and second those due to the patient. The early symptoms he describes—bleeding on coitus, metrorrhagia, etc., Under operative treatment he describes both radical and palliative operations.

3. Macalister gives a strong address on the influences of venereal diseases, their extent, the harm resulting from them, with suggestions for the future.

[J. B. H.]

DECEMBER 20, 1913.

1. *MAKINS, G. H. *The Bradshaw Lecture on Gunshot Injuries of the Arteries.*
2. *CASTELLANI, A. *Tyhoid-Paratyphoid Vaccinations with Mixed Vaccines.*
3. MORISON, A. E. *Typhoid Cholecystitis.*
4. STEWART, P. A *Case of Hysterical Monoplegia Following Electric Shock.*
5. MILLS, W. T. *A Case of Gastric Tetany: Recovery.*
6. DICK, M. I., AND RUTHERFORD, W. T. *A Case of the So-called Rat-bite Disease.*

1. Makins discusses first the changes in the shape of bullets which have taken place in recent years and then takes up the anatomical characters of injuries inflicted upon the blood vessels by the small calibre bullet, contusion of the vessel wall, frequency of various classes of wounds, immediate results of injuries, primary hemorrhage, spontaneous healing of arterial wounds, secondary hemorrhage and the development of aneurysms. Under the subject of treatment he considers proximal ligature, simple direct ligature; the effect on permanent lowering of the nutrition of the liver, thrombosis and other accidents. There is a wealth of interesting material in this article.

2. The gist of Castellani's article is that in countries such as Ceylon where paratyphoid is prevalent, a mixed vaccine of typhoid and paratyphoid should be used in prophylaxis.

[J. B. H.]

DECEMBER 27, 1913.

1. GILFORD, H. *On the Nature of Old Age and of Cancer.*
2. *SHIPWAY, F. E. *The Intratracheal Insufflation of Ether.*
3. MACKINLAY, W. H., AND WEEKS, L. M. *A Case of Ruptured Aneurysm of the Descending Aorta.*
4. BUSHBY, T. *A Case of Spontaneous Hemo-pneumothorax.*
5. FRASER, J. B. *Lithopaedion.*

2. Shipway discussing intratracheal insufflation of ether names as the advantages of this method that (1) a free airway is obtained, (2) anesthesia can be kept lighter than by ordinary method; (3) the etherizer is out of the surgeon's way; (4) respiratory movements are very slight, and (5) shock is diminished. Among its disadvantages he cites the following points: (1) The apparatus is costly. (2) It is also cumbersome. (3) The introduction of the catheter is a difficult procedure.

[J. B. H.]

THE INDIAN MEDICAL GAZETTE.

DECEMBER, 1913.

1. *CASTELLANI, A. *Typhoid-Paratyphoid Vaccination with Mixed Vaccines.*
2. BARRY, C. C. *A Review of the Treatment of Depressed Fractures of the Skull at the Rangoon General Hospital During the Past Four Years.*
3. STEPHEN, L. P. *Notes on Some Interesting Cases.*
4. HEHIR, P. *Disease Carriers in Our Army in India.*
5. MUNRO, D. *Notes on a Renal Case, with Remarks on the Relief of Renal Pain by Washing Out the Pelvis of the Kidney Through a Urethral Catheter.*
6. KENRICK, W. H. *Malaria and Color.*
7. NEWMAN, E. A. R. *A Note on Two Unusual Cases of Cysts.*
8. WATTS, H. *Fractured Spine; Paraplegia; Laminectomy.*
9. BULLOCH, O. H. *Partial Suppression of Both Upper Extremities.*
10. SINGH, D. *Prostatectomies Performed.*

1. In view of the prevalence of the paratyphoid fevers in the tropics, Castellani advocates the use of a mixed typhoid, paratyphoid A and paratyphoid B vaccine, which in practise he has found harmless and effective. He gives two doses, the first containing 500 million typhoid, and 250 million of each of the paratyphoid bacilli, the second double these amounts.

[R. M. G.]

THE PRACTITIONER.

.. DECEMBER, 1913.

1. BUZZARD, E. F. *Varieties of Facial Spasm and Their Treatment.*
2. *LOCKYER, C. *Genital Prolapse.*
3. BALL, C. A. *Nephrectomy.*
4. *NABARRO, D. N. *The Principles of Serum and Vaccine Therapy and Their Application to Diseases of Children.*
5. WALKER, C. G. *Fact and Fancy in Cancer Research.*
6. MCDONAGH, J. E. R. *Venereal Diseases as We See Them To-day.*
7. MACLEOD, J. M. H. *Recent Advances in Dermatology.*
8. NORBURY, L. E. C. *Imperforate Conditions of the Rectum and Anal Canal and Their Treatment.*
9. ROLLESTON, J. D. *Local Treatment of Vincent's Angina with Salvarsan.*
10. EMRYS-JONES, F. *The Diagnostic Value of the Bismuth Bolus.*
11. HICKS, P. *On the So-called Movable Kidney Disease.*
12. STEVEN, H. E. S. *Enteritis in a Turkish Cholera Camp.*
13. ROBERTSON, A. N. *Chronic Mucocele.*

2. This is a long and detailed article dealing with causes, symptoms, signs of genital prolapse and an elaborate description of the writer's operative methods.

4. This is a general review of the subject of vaccine therapy with practical advice as to how to get the best results. It presents nothing new.

[J. B. H.]

Obituary.

EDWARD CHARLES SPITZKA, M.D.

DR. EDWARD CHARLES SPITZKA, the well-known New York neurologist and alienist, died suddenly on Jan. 13. The immediate cause of death was cerebral apoplexy, but for some time he had been suffering from necrosis of the jaw, of malignant origin, for which he had been operated upon four times. Dr. Spitzka was born in New York City on Nov. 10, 1852, and was graduated from the medical department of New York University in 1873, after which he studied at Leipsic and Vienna for three years. From 1881 to 1884 he was editor of the *American Journal of Neurology*, and in 1885 was appointed professor of medical jurisprudence and neurology in the New York Post-Graduate Medical School. His "Treatise on Insanity" was published in 1883. He was vice-president of the section on neurology at the Ninth International Medical Congress, and at different times served as president of the New York Neurological Society and the American Neurological Association. Dr. Spitzka was especially interested in criminal psychology, and he was one of the scientists selected to witness the first execution by electricity in the State of New York. He was also one of the medical experts in the trial of Guiteau, the assassinator of President Garfield, and he expressed the opinion that the man was insane. His only son is Professor Edward Anthony Spitzka of the Jefferson Medical College, Philadelphia, widely known as an authority on the anatomy of the brain.

Miscellany.

A QUESTION OF VERACITY.

WE quote in full the following letter from Dr. G. W. Crile of Cleveland, published in the Philadelphia *Public Ledger* for Dec. 30, 1913:—

"In your issue of Dec. 19, 1913, is published a letter of Mrs. Henderson, of Washington, D.C., vice-president of the American Anti-Vivisection Society, in which she says:—

"'We eagerly offer our citations in the hope that the public will take the trouble to verify them.'

"I hope the public will take her at her word, for she did not 'take the trouble to verify' her own alleged quotations from my book on 'Surgical Shock.' On page fourteen of this monograph, the following statement is made:—

"'In all cases the animals were anesthetized, usually by the use of ether, occasionally by chloroform, either alone or with ether. In a few cases curare and morphine were used.'

"'I have again gone through the book carefully to discover what possible foundation the writer of the letter could have for her statement that this book 'repeatedly describes experiments followed by the words 'no anesthesia.' I have failed to discover any such words and, therefore, cannot see how her statement can be considered anything but a falsehood.

"As for the book having been withdrawn from public sale, that also is not true. The edition was long ago exhausted and the book is out of print, but it can be consulted at the Library of the Philadelphia College of Physicians and in various private medical libraries."

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR TWO WEEKS ENDING JANUARY 10, 1914.

December 26, P. A. Surgeon J. O. Downy, detached: Bureau Steam Engineering, Navy Department, Washington, D. C., to Atlantic Reserve Fleet.

December 27, Surgeon C. N. Fiske, detached: *Utah* to wait orders.

Surgeon J. M. Brister, detached: *South Carolina* to *Utah*.

Surgeon Allan Stuart, detached: *Vermont* to *South Carolina*.

P. A. Surgeon W. L. Mann, detached: Naval Recruiting Station, Dallas, Texas, to Training Station, San Francisco, Cal.

Act. Asst. Surgeon J. B. Bostick, detached: Training Station, San Francisco, Cal., to Recruiting Station, Dallas, Texas.

December 30, Surgeon H. W. Smith, Naval Hospital, Boston, Mass.

January 3, 1914, P. A. Surgeon H. A. Giltner, detached: Naval Dispensary, Norfolk, Va., to Hospital at that place.

P. A. Surgeon W. Chambers, detached: Naval Hospital, Norfolk, Va., to Dispensary at that place.

January 5, Surgeon J. F. Murphy, detached: *Idaho* to *Montana*.

P. A. Surgeon F. H. Brooks, detached: *Birmingham* to wait orders.

P. A. Surgeon D. G. Sutton: *Birmingham* to *Montana*.

January 6, P. A. Surgeon C. F. Cottle, detached: Training Station, Great Lakes, Ill., *Mississippi*.

January 7, P. A. Surgeon A. H. Dodge, detached: *Mississippi* to *Idaho*.

January 8, P. A. Surgeon C. B. Munger, detached: *California* to waiting orders.

Surgeon J. A. Murphy, detached: Naval Training Station, San Francisco, Cal., to Atlantic Reserve Fleet.

Surgeon R. R. Richardson, detached; *New Jersey* to waiting orders.

P. A. Surgeon W. H. Cole, Detached: Naval Hospital, Mare Island, Cal., to *California*.

Asst. Surgeon J. V. Howard, detached: *Quiros* to Canacao Hospital, P. I.

Asst. Surgeon C. L. Beeching, detached: *Rainbow* to *Quiros*.

SOCIETY NOTICES.

THE HARVEY SOCIETY.—The seventh lecture will be delivered on Saturday, Jan. 24, at 8.30 p.m., at the New York Academy of Medicine, 17 West 43d Street, by Prof. Sven G. Hedin, University of Upsala.

Subject, "Colloidal Reactions and Their Relations to Biology.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, Jan. 27, at 8 p.m. sharp.

Business.

Communications.

"Medical Inspection of Immigrants at the Port of Boston," A. J. Nute, M.D., Acting Assistant Surgeon, P.H.S.; H. B. C. Riemer, M.D., Acting Assistant Surgeon, P.H.S.

The February meeting will consist of an illustrated talk on "The Identification of Prisoners," by Mr. Gustaf Gustafson, of the Secret Service.

The March meeting will be held at the Psychopathic Hospital. In addition to the papers a clinic will be held.

Annual meeting May 12, American House. The Censors will meet May 14th for the examination of candidates.

BRADFORD KENT, M.D., *Secretary*,
798 Blue Hill Avenue, Dorchester.

Refreshments after the meeting.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, January 26, 1914, at 8.15 P.M.

Address: "The Ninth International Otological Congress," Dr. Clarence J. Blake.

The annual business meeting will be held at 9 P.M.

Supper will be served at the close of the meeting.

E. W. TAYLOR, M.D., *President*.
ROBERT M. GREEN, M.D., *Secretary*.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, January 27, 1914, in the amphitheater of the Peter Bent Brigham Hospital, at 8.15 o'clock.

Program:—

Exhibition of cases.

Dr. E. Goetsch, "Remarks on the Cytological Characteristics of Different Functional Conditions."

Dr. A. F. Lugar, "Spastic Conditions of the Stomach."

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

APPOINTMENTS.

BOSTON DISPENSARY.

DR. PAUL J. D. HALEY, Assistant to the Surgeons in the Eye Department.

DR. BENJAMIN F. MURRAY, Assistant to the Surgeons in the Ear Department.

DR. E. W. FISKE, Assistant to the Surgeons in the Orthopedic Department.

DR. ANDREW R. MACAUSLAND, Assistant to the Surgeons in the Orthopedic Department.

DR. AUGUSTUS RILEY, Assistant to the Surgeons in the Genito-Urinary.

DR. FREDERICK L. KELLOGG, Assistant to the Physicians in the General Medical Department.

DR. JOHN T. WILLIAMS, Assistant to the Surgeons in the Gynecological Department.

RECENT DEATHS.

DR. MAX DANTES of New York died on January 8, at the age of 41. He was graduated from Bellevue Hospital Medical College in 1893.

DR. EDWARD CHARLES SPITZKA died of cerebral hemorrhage on Jan. 13 in New York in his sixty-third year.

Original Articles.

RECURRENCES OF ULCER OF THE DUODENUM FOLLOWING OPERATION.

BY WILLIAM J. MAYO, M.D., ROCHESTER, MINN.

IN an investigation of the results following operation on 600 cases of ulcer of the stomach and duodenum in which the history subsequent to the operation was ascertained, Graham[1] found that 81% were so relieved as to be considered cured and 10% were markedly benefited, that is, 91% were cured or improved, and 5% of the remainder were moderately improved. The results in the gastric group were not as good as in the duodenal by 3 or 4%. In a small number of the cases there was a recurrence of the symptoms following relief of some weeks or months; a small number of such have been re-operated on in our clinic. Also a small number in which the primary operation had been done elsewhere were re-operated on here. A study of the findings at the second operation has proved both interesting and suggestive, and it is my purpose to discuss the recurrence of symptoms following operation for duodenal ulcer on the basis of this data.

Gastrojejunostomy was the method of choice in the larger number of cases of duodenal ulcers subjected to operation. If actual obstruction existed to the third and fourth degrees, gastrojejunostomy, when properly performed, gave almost certain relief. Plummer[2] points out that such mathematical estimation is much more definite than the use of the terms "marked," "moderate," "considerable," etc., which have only relative meaning, and in estimating degrees of obstruction he advises the use of mathematical equivalents of descriptive terms. For example, obstructions are divided into four groups (1) represents those slighter degrees which might or might not be found on different occasions, (2) represents particles of food regularly found later than the normal period, (3) a grade of obstruction which retains certain parts of the food but allows the bulk of it to pass, (4) retention from mechanical causes which would result in the necessity for removal of such products by the stomach-tube or by vomiting. In response to mechanical obstruction, the stomach acts much like the heart, having periods of dilatation with feeble muscular action in which food remnants are found, and at other times good compensation when such remnants are not found. Obstruction to the first degree may be temporary, occasionally taking place as the result of pyloric spasm, which in turn might be caused by any one of a large number of diseases. Obstruction to the first and second degrees, if they are due to mechanical causes, will ordinarily be relieved by gastrojejunostomy, but not so surely as those accompanied by more marked obstruction as occurs in groups (3) and (4). The greater the obstruction within limits the better the results of gastrojejunostomy and the converse holds equally true that those cases with slight obstruction or without obstruction furnish the highest number of failures to cure.

Failure to cure and recurrences following operation can be divided into two general groups: First, failure of the operation to relieve the stomach of its acid, irritating secretions and inadequate protection of the ulcer itself during the healing period. This condition occurs more often in those cases without obstruction or with obstruction to the first degree in which gastrojejunostomy has been done, especially in the well-nourished individual without obstruction. The pylorus is open and much of the food passes out of the pyloric orifice in preference to the gastrojejunostomy. In such cases, attempts have been made to close the pylorus, thus forcing the food out of the gastrojejunostomy opening. Such closure of the pylorus may be brought about simply by infolding the pyloric end of the stomach with buried silk sutures. Fowler[3] used silver wire for this purpose. Lambotte[4] passes a piece of twine about the stomach just above the pylorus, ties it tight enough to mechanically obstruct, but without sufficient tension to interfere with the circulation, which would result in casting the ligature into the lumen of the organ. In radiograms following the bismuth meal Lambotte[4] has shown the pylorus blocked years after such closure. The general experience has been, however, that closure by the use of sutures has not produced a permanent blockage, but that these sutures are eventually passed into the lumen of the stomach with restoration of the channel, a result which rather regularly takes place in experiments with the normal stomachs of dogs, cats, etc. To obviate this, Wilms[5] introduced the practice of removing a piece of living tissue, *i.e.* a strip of the sheath of the rectus abdominus muscle one-half inch wide and four or five inches in length, which was drawn twice around the pyloric end of the stomach, pulled sufficiently tight and fastened, acting as a living obstruction. This has also been done using a strip of omentum.[6] For some time the method introduced in our clinic by C. H. Mayo has been practiced in such cases, that is, cutting a strip from the gastro-hepatic or gastro-colic omentum, leaving it attached at one end and drawing it twice about the stomach just above the pylorus, or, if the ulcer of the duodenum is sufficiently far below the pylorus, the omental strip is passed about the duodenum below the pylorus between it and the ulcer. The site of blocking should be diminished in size by the application of several interrupted sutures of fine silk to take the strain during the healing process. Since we have used this procedure the blockage remains permanent so far as we have been able to ascertain. However, sufficient time has not elapsed to show its exact

value, but it is undoubtedly true that living tissue drawn about the pylorus is more permanent than mechanical devices in which foreign bodies, such as threads, are used. Recently I re-operated on a case in which the pylorus had been closed in this manner for something more than a year. The strip of living tissue was still in place and covered with adhesions and the pylorus was securely blocked. Von Eiselsberg[7] divides the pyloric end of the stomach and closes both ends. This method is sure, but with a definite although small mortality. Haberer[8] advocates the unilateral exclusion of the pylorus (von Eiselsberg) in all ulcers of the pylorus and duodenum, not only because of the certainty of preventing food and gastric secretion from passing into the ulcerated area, but also because it prevents pyloric spasm and traction on the adhesions. In some instances, this latter condition is the cause of much pain and distress. While the unilateral exclusion has not been used in our clinic as a primary operation, it has been found very successful as a secondary procedure for the relief of pain, of recurring hemorrhage, or recurrence of the ulcer-syndrome in patients on whom a gastrojejunostomy has been made, which was mechanically successful, but in which some of the above symptoms continued. For several years it has been our practice in duodenal ulcer without obstruction and in which the conditions were favorable, to remove the ulcer from the duodenum by excision if possible. In our early cases the ulcer alone was excised. A considerable percentage of the cases subjected to simple excision relapsed within a year and it then developed that in addition to the excision it was necessary to do some type of drainage operation, either gastrojejunostomy, or a plastic on the pylorus, preferably the gastroduodenostomy of Finney[10]. The Finney operation lends itself admirably to excision of ulcers of the duodenum, the ulcer, being drawn directly into the operative field as the sutures are placed, can be excised with great ease and safety. Following gastrojejunostomy, if obstruction to the first and second degree exists, the ulcer should be infolded, as suggested by Moynihan,[11] and the pylorus blocked by living tissue. Especially should this be done if no obstruction, potential or actual, exists. If obstruction to the third and fourth degree be present, nothing more than gastrojejunostomy is essential, although infolding the ulcer is advisable. When hemorrhages were noted in the histories of the patients, the regional blood vessels were caught by sutures and tied.

In the second group of cases recurrence of the ulcer following gastrojejunostomy was apparent rather than real, and had its origin in improper suturing in the gastrojejunostomy. This happened in some cases which were most favorable for gastrojejunostomy, even when obstruction to the third or fourth degree existed at the time of the primary operation. Secondary operation showed that there was no recurrence of the original ulcer, but that a new ulcer had formed at the site where the gastrojejunostomy was made, due to heavy silk or linen sutures hanging in the suture line. Radiograms following a bismuth meal before re-operation showed that the gastrojejunostomy was not working well and that food was delayed in passing out of the stomach. The acidity of the gastric secretions in these cases was high and the retention of secretions on an empty stomach, as shown by the stomach-tube, indicated a high degree of hypersecretion, in fact, the whole ulcer-syndrome had re-developed to such an extent that recurrence of the original ulcer seemed certain.

In a previous paper[12] I reported cases of gastrojejunal ulcer secondary to gastrojejunostomy due to defects in the operation itself and especially suture ulceration. Further experience has confirmed the views then expressed. The length of time these sutures will hang in the suture line is remarkable; one case as long as 22 months after the original operation. Eight cases of this description, in five of which the original gastrojejunostomy was performed in our clinic, were re-operated on. In two (one of our own) there were intercommunicating fistulas between the stomach, jejunum and transverse colon. Both of these patients had feculent material in the stomach. The finding of colon contents in the stomach following gastrojejunostomy is an indication of perforating gastrojejunal ulcer into the transverse colon. In a third case an abscess was found connecting a perforation of such an ulcer to the abdominal wall. In five of the cases re-operation showed a heavy strand of silk or linen hanging in the wound, and I have reason to believe that this was the original cause of the gastrojejunal ulcers in the others. In two cases, the condition of the tissues were such that after removal of these heavy ulcerating sutures it was thought wise to cut away the gastrojejunostomy, completely restoring the wall of the stomach and jejunum by suture and then doing a plastic operation on the pylorus. This procedure proved so difficult that in later cases the gastrojejunostomy was reopened in the suture line and the suture extracted. The opening was then enlarged by a plastic operation, using interrupted sutures for the purpose. Experiences of this kind teach that very fine silk, not heavier than 0, should be used for gastrojejunostomy, that the bite of the sutures should be as near the margin of the incision as possible and that, if it is necessary to reinforce a weak suture line, interrupted fine silk sutures are advisable or such sutures used for part or the whole of the outer row. It has been our practice for a long time to use catgut for the inner row, but it is not the inner row that gives trouble. It is the outer or musculo-peritoneal suture, and I have no doubt that if the order were reversed, using silk or linen for the inner row and catgut for the outer, better results would follow. How-

ever, catgut is so good a culture medium that one hesitates to use it on the peritoneal surface of a necessarily infected wound.

If the margins of the opening in the transverse mesocolon contain fatty tissue, it should be sutured to the stomach rather than to the gastrojejunal suture line. Otherwise, it may form a collar-like mass constricting the opening.[12]

The gastrojejunal opening, as a rule, should be placed at a point directly under the cardiac orifice and not in the pyloric end. The point to be selected has its origin on the lesser curvature a little to the right of the incisura angularis and passes vertical oblique to the left. Two cases of contracture of a gastrojejunostomy made in the pyloric end close to the pylorus have occurred in our experience; in neither of the cases was the original operation made in our clinic. There were no symptoms of recurrence of the ulcer in these two cases, but only those of interference with drainage from contraction of the opening and in each case the gastrojejunostomy was reduced to small size. In both of the above cases, the gastrojejunostomy was cut off and made at the usual situation with permanent relief. It is evident that an opening made in the muscular pyloric end of the stomach has a greater tendency to contract than when made at the point of election.

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[5] Wilms: Journal-Lancet, Nov. 15, 1913, p. 623.
[6] Kolb: Deut. Chir. Kong., 1913. München. med. Woch., Oct. 28, 1913. p. 2400.
[7] von Eiselsberg: Wiener klin. Woch., No. 2, 1910.
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[10] Finney: Johns Hop. Hosp. Bull., July, 1902, pp. 155-161.
[11] Moynihan: Trans. Am. Surg. Asso., vol. xxi, 1903, pp. 135-207.
[12] Mayo (W. J.): Surg., Gyn. and Obst., March, 1910, pp. 227-229.
[13] Mayo (W. J.): Annals of Surgery, March, 1912, pp. 398-399.

PROGRESS IN THE DIAGNOSIS AND TREATMENT OF SYPHILIS.*

BY JOHN H. CUNNINGHAM, JR., M.D., BOSTON.

IF modern thought has any new truths to contribute to the inherited stock of medical wisdom, it is because we are in a position to study more exactly the forces and conditions.

Until within the past few years our knowledge of syphilis has not been of a scientific character; the parasite causing the disease was unknown and the personal equation in the establishment of the diagnosis was too often an important factor in the recognition of this disease, and treatment was conducted in a most arbitrary and unreliable manner. We did possess much inherited knowledge in regard to this disease based upon physical observation; the opportunity for which has been great, syphilis being one of the most universal diseases, and no organ in the body being exempt from its effects.

Syphilis has been recognized by the modern world since about 1494, at which time it appeared among the soldiers in the army of Charles VIII, then King of France. It spread rapidly over Europe and has become one of the common diseases in all civilized countries. The weight of evidence seems to be that the disease was introduced into civilization by Christopher Columbus's men, and that it was acquired by them on the Island of Hayti.

Syphilis, gonorrhea, and chancroid were considered as the same disease until about 100 years ago, when Phillippe Ricord proved that syphilis and gonorrhea were distinct diseases and established the theory for primary, secondary and tertiary syphilis. The discovery of the gonococcus by Neisser and Bassereau's work, differentiating true chancre from chancroid, established these three diseases as distinct, and from that time they have been clearly separated. Since syphilis has been considered as an entity observations have established the facts that syphilis is an infectious disease, acquired by contagion or heredity, chronic in its cause, intermittent in its character, and may involve any structure of the body. We have inherited the knowledge that the acquired disease begins as in the eroded, indurated papule, at the point of inoculation, within a few weeks (usually three) after contact with the virus, the lesion being known as the chancre, and that accompanying the chancre there are associated changes in the adjacent lymph nodes, characteristic inasmuch as they are small, shotty, hard and discrete, except when the chancre is secondarily infected with pyogenic organism. We have the knowledge that within a few weeks following the appearance of the chancre (usually six) there is a general infection manifested by characteristic exanthemata, upon the skin and mucous membrane, a characteristic general glandular involvement, and perhaps an iritis or a periostitis. We have been aware that after all symptoms and lesions have disappeared, that the disease may again manifest itself in a variety of forms which we have termed tertiary lesions, and that a group of symptoms may appear which are really syphilitic in origin but which may not be clearly correlated with syphilis and are termed the parasyphilides, as, for example, tabes and general paralysis.

We have been well informed that a child born of syphilitic parents may inherit the disease, and that the disease may manifest itself in one way or another at any period of subsequent life, and that the majority of miscarriages are due to infection by this disease. Also that the disease may remain latent in the offspring of syphilitic

* Read before the Worcester District Medical Society, Nov. 12, 1913.

parents and manifest itself in future generations.

All medical men have been aware of these general facts relative to the disease for many years; also that the lesions of this disease may usually be controlled by mercury and by the iodides. Clinical experience has proven it advisable to continue the administration of these drugs for many months after the secession of all symptoms in an attempt to prevent a reappearance of the lesions which experience has likewise taught us to anticipate. We know that the reappearance of lesions and the development of the parasyphilides in those considered well treated has left us without any certainty as to the effectiveness of our treatment. And so we have been aware for years that our inherited knowledge has not given us in this disease all that we have had in many other diseases.

New facts of primary importance have developed, which new truths added to our inherited stock of knowledge furnishes us with an intelligent foundation for the treatment of this disease equalled by few and surpassed by none.

The investigations as to the etiological factors in the causation of syphilis, which have been conducted for years, terminated with the discovery of the Treponema pallidum or Spirochaeta pallida by Schaudinn and Hoffman in 1905. The importance of this discovery and the subsequent work proving the Treponema pallidum to be the etiological factor of syphilis has been great. As a direct result of this discovery we were given within two years the Wassermann test, which no longer leaves the diagnosis of syphilis in doubt, and makes the treatment of this disease no longer a matter of guess work. The establishment of the fact that syphilis was due to a spirillosis led Ehrlich, who was studying the effect of arsenic preparations on animals infected with different spirilla, to apply his new principle of chemotherapy to animals infected with the spirilla of syphilis and later to syphilis in the human. So it has come about since 1905 that we have learned to recognize the parasite of this widespread and important disease; to have been given a sero-diagnostic test which establishes the presence or absence of the disease in doubtful cases; and a new therapeutic measure which controls the disease far better than any measure heretofore known.

This remarkable sequence of scientific events following rapidly upon one another has aroused an unusual interest in the minds of the medical profession of the world, and has engaged the thought of the laity in one of the most important diseases to which the human race is heir. Before this interest was aroused among the medical profession syphilis often escaped detection in its later stages, and in the early stages the diagnosis depended mainly upon the development of the secondary rash, or in other words, waiting until the individual gave evidence of the general infection before treatment was begun. The old teaching that treatment should not be instituted until the diagnosis was established remains true today, but the diagnosis may be made earlier and treatment begun before the system is saturated with the virus of the infecting organisms. This is brought about by finding the spirochaeta in the earliest of all lesions, the chancre. The finding of the organism in the chancre establishes the diagnosis and indicates that treatment should be instituted at once, and with the new form of treatment it is often possible to prevent the general infection from progressing to the point of producing general manifestations, or in other words, checking or aborting the disease without the appearance of the usual secondary signs. The spirochaeta pallida is also found in mucous patches, and its demonstration in such lesions, especially when mucous patches are the only questionable lesions present, makes clear what was previously often confusing; doubt arising whether the disturbances on the mucous membrane were due to the disease, mercurial treatment, or other affections, such, for example, as leucoplacia. The organism can also be demonstrated in the papules of the secondary eruption and in the lymph nodes, which, however, from a diagnostic standpoint, is seldom important; but their demonstration in tertiary lesions, such as ulcerations, and in condylomata furnishes evidence that the disease is communicable through lesions of this nature. It is of scientific interest to know that the parasites may be found in nearly all of the tissues of the syphilitic fetus, even the bones, and also in the placenta and cord.

While the diagnosis of syphilis may be made by demonstrating the organism in any open lesion of syphilis, the chancre, mucous patches, ulcerations and condylomata, the patient is not always observed with these clinical manifestations of the disease, but without demonstrable lesions other than a general glandular enlargement, and even this may escape detection. In the event of a suspicion of syphilis being entertained by a questionable history, or indefinite and not absolutely characteristic symptoms, such as nocturnal headaches, rheumatism, and pain in the long bones, tumor masses which might be gummata, or nerve disturbances of nearly any variety, we must have recourse to the Wassermann reaction as applied to the blood or the spinal fluid to aid us in the diagnosis. As far as the diagnosis is concerned, therefore, we now have little excuse for not recognizing syphilis in the early or late forms. In the primary stage we are not to wait until the secondary eruption appears to begin treatment, but should demonstrate the organism in the chancre, or establish the diagnosis by a Wassermann reaction, which is sometimes, but not always present before the eruption appears. In the later stages the organism may be demonstrated in all open lesions, and a positive Wassermann reaction may be considered evidence of the disease. In the spinal cord affections fluid obtained from the spinal canal by lumbar puncture for a Wassermann

test is indicated in order that the diseased condition of the cord may be decided as syphilitic or otherwise.

The demonstration of the spirochaeta is not difficult and any practitioner who is capable of making an examination of urinary sediment is capable of recognizing the spirillum of syphilis. The technic is simple, the parasite being detectable in the living state by the dark field illuminator, or in dry smears by staining with different reagents. The dark field illuminator is a rapid and effective method of diagnosis, and one may observe the organisms in a living state, noting their movements and manner of reproduction, but its use must be limited as it is a special and expensive equipment.

The detection of the parasite in smears is simple, quite as satisfactory for practical purposes of diagnosis and may be carried out by the practitioner in his office, without special apparatus or devices. The preparation is made as follows: The lesion from which the smear is to be made is cleaned with water or soap and water, if necessary to remove crusts, pus, or any coagulated masses, from the real surface of the ulceration. With gauze or a small curet the lesion should be curetted at a point where the sound and ulcerated tissue approximate one another, that is, at the margin of the ulceration. Bleeding will result, and as only serum is desired for the smear, the blood is wiped away, and the curetted area is compressed firmly with gauze until the hemorrhage is checked. With the removal of the compression, a flow of serum will take place. One or two drops of this is collected by a sterilized platinum loop, and placed on a slide. Many different methods of staining have been tried, the Giemsa stain, essentially an analin stain, was the one originally employed by Schaudinn and Hoffman, but cannot be recommended for practical purposes of diagnosis, as it requires from 18 to 24 hours to complete. To those interested in the various methods of staining the parasite, this method and that of Schereschewsky, the method of Romanowski, Hastings' stain, and Stearns' silver method, will all be found satisfactory, but, as it is my desire to make the method of detecting the parasite one of simplicity and for practical purposes only, I will describe the method of staining with India ink. This method, first brought forth by Burri in 1909, and later proven to be accurate by Hecht and Wilenko and by Fruehwald, Cohen and others, consists of placing a loopful of the serum on an absolutely clean slide (washed with soap and water, placed in alcohol for one minute, and dried by passing through a flame), and mixing with one loopful of commercial India ink. After mixing these two fluids, spread the mixture over the slide by drawing the edge of another clean slide over the first, as in making a blood smear. The film dries in less than a minute without heat, and is then dark brown or black in color. Nothing further is necessary except to apply to the film a drop of oil and to make the examination with an oil immersion lens. The field is observed as a homogeneous black or brown color, with the blood cells, extraneous matter and spirochaetae shining through as colorless refractal bodies. The spirochaetae are readily differentiated from anything else. They appear as an extremely slender refractile thread from 7 to 21 microns long, which is from one to three times the diameter of a red blood corpuscle, closely wound in a corkscrew form, the windings being absolutely regular, and from 5 to 20 in number. There is one spirochaeta which often appears in the smears together with the spirochaeta pallida, the spirochaeta refringens. This spirochaeta, which grows on the surface of ulcerations, has no points in common with the spirochaeta pallida. It is much thicker, has but four or five convolutions, which are more drawn out and wavy. In making smears from questionable ulcerations in the mouth, the spirochaetae buccalis and dentata may appear in the smear; it cannot be confused with the spirochaeta pallida because they are both thick spirilla with relatively few convolutions, and never have the closely wound corkscrew form of the spirochaeta pallida. There is only one other spirillum which requires mention, which is known as Vincent's spirillum. This resembles closely the spirochaeta refringens, and always is associated with a fusiform bacillus.

Just a word about the India ink for use in this method of staining. The best kind is Chinchin, made by Gunther and Wagner. Barach criticized the India ink method on the ground that India ink might contain bodies resembling spirochaetae, but this does not apply to the ink referred to above, and as Cohen and others have pointed out, is referable especially to Higgins' India ink. So much for the establishment of the diagnosis by demonstrating the infecting organism in syphilitic lesions. We will next consider the newer method of diagnosis of the disease after general infection has taken place.

Without describing the technic of performing the Wassermann reaction, which is distinctly a technical procedure, only to be carried out by trained laboratory workers to be reliable, I desire to speak of how the test is of practical value to the practitioner as an aid in diagnosis.

One is only required to know certain things to avail himself of the valuable information furnished by the Wassermann and allied tests. In the first place, the Wassermann reaction may not take place in the individual before the secondary eruption appears. I have repeatedly found it negative three weeks after the appearance of the chancre, but have frequently found it positive five weeks after the appearance of the primary sore, but even at this date it may be negative. At this stage of the disease the demonstration of the spirochaeta pallida is the more reliable evidence in establishing the diagnosis. The Wassermann test should never be expected to be positive in those under mercurial

treatment, and a period of at least four weeks, and better six to eight weeks, absence from mercury should elapse before a negative Wassermann finding may be considered reliable. It is a well established fact that mercury renders the Wassermann reaction temporarily negative. In the parasyphilitic affection tabes and general paralysis, for example, the Wassermann test as applied to the blood may be negative, while the spinal fluid shows a positive reaction.

As regards the diagnostic importance of the Wassermann reaction, there has been much discussion. All information in regard to this matter, except that expressed by those who have all the facilities and the ability to make correct examinations, is worthless. The tests will, in all probability, remain limited to well equipped laboratories, and to those workers who have made the test a special study.

The Wassermann reaction must be considered a test for a systemic infection, and cannot be expected to be positive before systemic infection takes place. When the unmistakable lesions of syphilis are present, the reaction is only confirmatory evidence in the diagnosis, and of no real diagnostic value after the spirochaetae have been found. The great value of the test is in those conditions where the symptoms suggest a specific causation without sufficient clinical evidence, for example, in the inherited forms of the disease, in the female parent of the syphilitic offspring, cerebral and spinal syphilis, syphilis of the bones and internal organs, gland changes and certain tumor masses. In such conditions much weight must be given to the result of the Wassermann test in establishing the causation as syphilitic or otherwise. A negative Wassermann finding may occur in some syphilities where the spirochaetae are few or encysted in tissue poorly supplied with blood, and repeated examinations at varying intervals are indicated when the lesions continue to excite the suspicion of a specific causation. Repeated examinations are absolutely indicated in all cases treated with salvarsan, for there is a considerable percentage of reactions negative two to three months after such treatment, that will later become positive.

No case of syphilis can be considered intelligently treated except when the Wassermann reaction is employed, as a control to decide whether the case is progressing favorably or unfavorably, and it is the information furnished by this test that enables us to decide when to stop treatment and when we should allow such patients to marry.

The blood for a Wassermann reaction is collected in the following manner. The left arm is bared if the patient is right handed, and vice versa if left handed; an area about the anterior aspect of the elbow joint is made surgically clean by scrubbing with soap and water and alcohol. A rubber tourniquet is lightly applied over the upper part of the biceps, and the fist clinched tightly. The veins thus become prominent unless the tourniquet is so tightly applied as to cut off the arterial circulation. If the arm is particularly fat, the veins may not be visible, and must be located by palpation. A vein being selected, the skin is made tense by the thumb and forefinger of the left hand of the operator, and a 17-gauge needle made sterile by boiling for at least two minutes in an ordinary tablespoon or otherwise, is plunged through the skin by the right hand of the operator, entering the vein in the direction of the course of the vein, with the point of the needle directed upward toward the shoulder. The blood is collected in a test tube, which may be made sterile by boiling, or as I prefer, a sterile 10 c.c. pill vial, which may be more easily closed by a tight fitting cork stopper. At least 8 c.c. must be collected and the vial laid on its side at an angle of 45 degrees, so as to allow the serum to separate more readily. The tourniquet is removed, and the puncture covered with a small bit of sterile gauze held in position by a strip of adhesive plaster. This dressing may be removed in eight to ten hours. To obtain the best results, the blood should not be over 24 hours old before testing.

In regard to the new method of treating syphilis much may be said. To put it briefly, the exact place which salvarsan occupies in the treatment of syphilis is not absolutely settled as yet, but there is little question that the disease is best treated by intravenous injections of this drug, alone or combined with any of the various forms of mercury.

The medical literature upon this subject has been most extensive, but after considering much that has been written, one is impressed with the variation in the ideas in regard to methods and results. It is really a difficult matter, even today, to know just where we stand in the rules to be followed in the treatment of syphilis by salvarsan, and statistics for and against the value of this drug serve chiefly to confuse the casual reader of medical literature.

Some authors record series of cases treated by a large initial dose of this drug, followed by two or more comparatively large doses, repeated at various intervals, some a few days, and some, weeks; with or without combined mercury treatment. Others advise small, often-repeated doses, with or without mercury as an adjuvant, while some feel that the best results are obtained by a course of mercury before salvarsan is administered at all. Beside the variations of opinion regarding the most efficacious method to employ, most reports are incomplete, inasmuch as the cases are from hospital or dispensary practice, and disappear altogether with the secession of symptoms, or are not continually observed by one observer, and in most instances the cases are not checked by repeated Wassermann reactions over a sufficient period of time to give us the hard and fast rules to guide us in outlining the best course of treatment to pursue. In other words, there is today no unanimity of opinion in regard to the best manner of conducting the treatment of syphilis by salvarsan.

Nevertheless, even with this confusion of ideas, based upon the variations in the individual ideas of those who have been particularly interested in this subject, certain fundamental deductions may be fairly made. In the first place, the worth of this new drug has been clearly established upon whatever basis it is administered, and it is unquestionable that the intravenous method gives the best results.

There are two important points of caution: The drug must be prepared according to directions, and asepsis must be absolute in all particulars.

In the past it was felt that patients suffering from circulatory disturbances might not receive the drug without considerable danger. This fear has passed out of my mind, for I have often given the drug to patients suffering from almost all forms of circulatory disturbances, but in all such individuals with high blood pressure, considerable blood has been drawn off before the injection was made. I have given the drug several times to patients with diabetes, and improvement rather than otherwise has taken place in those suffering from diseases of the optic nerve, the disease in these cases usually being syphilitic in character. One patient, a doctor, who was absolutely blind, received five large doses of the drug (three of .9 gms. and two of .6 gms.) with the result that the eyesight is now such that he can read and walk about the city streets without assistance. While it may not be important to bleed patients with high blood pressure at the time of making the injection, there can be no harm in so doing, and the fear of serious effects which might be caused by increasing the intravascular pressure in such individuals is minimized.

I have never in my own experience observed any permanent untoward effects from the use of this drug. In two early cases some of the drug infiltrated the subcutaneous tissue. In both of these patients, and in others that I have observed, occurring in the practice of other men, there was a slow necrosis of subcutaneous tissue and fascia, resulting in a very slow sloughing and repair process. I am familiar with two cases of death following general sepsis depending upon faulty and unclean technic. One of these patients had a septic meningitis. I believe there are unquestionably many serious results depending upon faulty technic, of which we are unfamiliar because no mention is made of them. It may be fairly said, however, that those who have given this form of treatment careful attention may carry out this new treatment with safety. As I have repeatedly said, however, this treatment should not be employed by any one who has not first seen the details of its administration, and who cannot for whatever reason carry out the details absolutely.

Beginning in November, 1910, while the drug was considered by Ehrlich as in the experimental stage, I have continued to employ it in nearly every case of syphilis which has come under my care, both in private and charity clinics. My observations are similar to those made by others who have had much experience with the treatment of this disease by salvarsan, both in regard to the impossibility of curing all syphilitics by a single dose of the drug, and the advisability and necessity of sometimes combining mercury with this new remedy in an attempt to free the individual of the infecting parasite. Indeed, it has occasionally been impossible, after repeated injections of salvarsan and energetic mercury treatment, to prevent the recurrence of a positive Wassermann reaction. I have repeatedly, in fact usually, seen all visible lesions of the disease rapidly disappear with a single dose of the drug, which was responsible more than anything else for the early belief that a single dose of this new drug resulted in a cure. The period of time that this belief could be reasonably entertained was of short duration, for the lesions often recurred, a negative Wassermann reaction was not always found even in the absence of all symptoms, and even repeated negative Wassermann reactions at intervals of months after the administration of the drug sometimes again became positive without recurring symptoms. On the other hand, I have under observation many patients in which a single dose of the drug has apparently destroyed all the parasites and repeated negative Wassermann reactions and absence of clinical signs must lead to the belief that these patients have been cured. I think that it is a fair assumption that patients who have gone two years with repeated negative tests and no clinical symptoms, may be considered cured, and I have had two patients again acquire the disease, which is to my mind the best proof of the truth of these conclusions.

It was to take care of the cases in which lesions recurred and a Wassermann reaction either remained positive or becoming negative, again became positive, that the hope of a cure in all cases by a single dose were lost, and that treatment was energetically pushed beyond the ordinary clinical and laboratory requirements by rapid repetition of injections of salvarsan, with or without mercury, in order to do too much rather than too little. How much relapses have been favorably circumvented by such energetic measures is not certain by any means, for it is well known that even under this "gunshot" method, that a recurrence and a positive Wassermann reaction and recurrence of lesions is not materially changed by such a procedure. It is impossible to accurately determine the percentage of cases benefited by over-treatment as compared with those who are treated in a more conservative manner. It is felt by certain observers that if one or two closely repeated doses of salvarsan failed to effect the desired result, that many closely repeated injections failed also. So it is in this confusion of methods that it is impossible to give to the practitioner any pre-

cise course to pursue with promise of a definite cure for his patient.

Disregarding statistics and the diverse opinions of others and considering the subject from the viewpoint of personal observation based upon a considerable experience, I have come to certain definite conclusions, the most important of which is that syphilitic patients must continue now, as in early days, to remain under observation for years.

It is urged that a conservative policy be pursued until the future offers a solution of this confusion of opinions, and for the reason that it is more prudent at this time to rely upon clinical signs and laboratory control than to impose a haphazard, hit-or-miss and most miscellaneous form of treatment, which is a tremendous inconvenience to the patient while promise of distinct advantages cannot be offered.

THE CASE FOR RADIUM THERAPY.

BY SAMUEL DELANO, M.D., BOSTON.

Of an American status we may scarcely speak. In comparison with the activity in foreign lands our interest deserves but slight mention.* This state of things is, however, by no means creditable. In so far as it is conditioned upon the expenditure involved or the inability to obtain material, it may be condoned, but as an expression of nonchalance it is by no means so easily defended. Radium has already a past and has been recording history at a rapid rate, especially within the last year. Radium therapy is then a plant of too vigorous a growth to be sniffed at. America ought to raise some plants of its own!

It is true that the pathway of medicine is strewn with those overthrown pillars which once were thought to mark milestones on the highway of progress, but which proved only *wegweiser* into a *cul-de-sac;* but that should be only a stimulus to a finer discernment, not to an *insouciance.* Radium has to encounter a good deal of the *nil admirari* attitude—a certain assumed aloofness of the "you can't feaze me" character; but nowhere could this be less justified than in the case of radium.

In the first place this attitude is not true skepticism, which in its real significance implies a broad and elevated outlook (*Skopein,* to overlook from a height). In this sense, skepsis in medicine is really the handmaid of truth. The surgery of today might, for example, with good advantage concern itself as much with skepsis as with sepsis. And so of radium: we may, if you will, look upon it as still in an experimental stage, even to a considerable extent in the "*quod sit demonstrandum*" state, but even in the event of ultimate failure and disappointment, America ought to take part in so huge a therapeutic enterprise, if only for the sake of saying "*quorum pars fui.*"

Few new therapeutic measures of two decades have gone further and under better auspices than radium. The large names and towering reputations enlisted in its cause need not be accepted merely on the basis of personal authority. Therapeutic claims are supported by analogous findings in biology and chemistry. A discovery that has jostled the science of physics to its very foundation need not be looked at askance when it threatens to repeat its thaumaturgy along therapeutic lines, nor suspected of affording a mere *appoggiatura* for chicane.

Consider the relation of surgery to cancer. Operation for cancer of the breast, *e.g.* is one of the earliest of surgery, and yet today who shall say that, so far as cure and the lease of life is concerned, cancer of the breast does not remain one of the opprobria of surgery. In order to estimate fairly the results of surgery here, we ought to possess data resting upon a natural history, *i.e.* upon a large series of cases left to themselves and to purely medical treatment. When the question is considered by and large we certainly should have to reckon with the destruction of vital capital effected by surgery.

Here is a woman looking to her friends as well as ever and able to do her work as a singer. She takes a friend into her confidence and reveals a cancer of the breast; at the urging of this friend she is operated on. The whole complexion of things is changed—no recuperation, even under the most favoring circumstances! But on the contrary, immediate prostration and a steady decline to death four months later. Certainly surgery seems an active "precipitant" in such a case. "But," rejoins Surgery, "we must get the cases early." Said a surgeon dying, himself an earnest advocate of much and early operating, "I am sorry I had it done," referring to an operation in regard to which a foremost surgeon had felicitated him on its very early execution.

As to the part performed by surgery even at its best, we may speak merely of "eradication." We may not speak of a "cure" by the knife, as Abbé properly says, but must look to some process along the lines of chemo-therapy which shall be productive of a cell change; and this we seem to have in radium, as we shall presently call to attention; for with radium we may really speak of a *restitutio ad integrum.*

Through quotations let us see of what sound investigators and good surgeons have been able to convince themselves on the relation of radiation to cancer.

Domenichi, while finding radium most useful in superficial cancer, is yet able to report complete clinical cures of deep-seated malignant growths of the parotid neck and uterus with no recurrence in 3-4 years.

Abbé believes "a new era has dawned for surgery."

* This refers to systematic work and does not disparage one whit the distinguished individual efforts of our sappers and miners, Abbe, Williams and Kelly.

He reports that he is meeting with "a never-increasing percentage of success" and that "cancer is not always incurable." Abbé can refer to cures of deep seated giant-celled sarcoma of bone with no recurrence in nine years.

Knox (London Cancer Hospital) believes that in early cases the choice should still be given to operation because we are not as yet certain enough of results in radium, but says that radium "promises an unique field of usefulness in therapeutics."

Pinkus says that radiation has displaced operation, but takes pains to point out that he means only locally speaking—not glands and metastases.

Kroenig, speaking of the pelvis, believes that even operable cancer should be radiated, if it is "controllable by sight or touch."

Bumm and Voigts say in August, 1913, "We are in a position to bring to healing any cancer of any kind, even quick growing, round-celled medullary varieties, in proportion as it can be made accessible—and we can cure the cancer if we can reach the metastases."

Finally Gauss says, speaking of the pelvis, "In Freiburg we do not operate on cancer; we radiate."

Radiation: General Considerations. The activity of radium depends, in the first instance on the formation of the emanation, a gas of definite properties, of which more will be said *infra.* An atom of radium splits into Alpha particles and emanation. In turn the emanation splits (so-called decay) into Alpha particles, and the secondary deposit and from the decay of this last come the two other classes of rays, Beta and Gamma. Now if this splitting or decay occurs in radium that is sealed, the emanation is enmeshed within the radium itself, and the constant decay gives rise to the mechanism of general radiation and the liberation of energy. This is tantamount to ageing of radium, freshly prepared radium being comparatively inert (the maximum of Gamma rays not developing for a month—and there are no Gamma rays until the third decay product in the active deposit,—"Radium C,"—has been reached.

If, on the other hand, the radium is open or dissolved or heated, the emanation is liberated and may be made use of in various forms for internal use. Thus radiation in any case depends upon the emanation, only in the one case, as in a tube, for example, there is a uniform activity of rays from the splitting of the emanation and successive products, while in the other, when emanation is introduced internally, it is in the body that the splitting goes on with the liberation of rays and energy. Thus the use of radium divides roughly, and with due reservation, into external and internal.

Radiation for New Growths. Radiation turns (1) on the quantity and quality of the rays used; (2) on the filter, its nature and density; (3) on the density and composition of irradiated tissue.

1. *Rays* are of three varieties, of well defined characteristics and differences; to them the designations, Alpha, Beta and Gamma have been attached. Alpha rays are not rays at all, properly speaking, but electrically charged (pos.) particles identified with Helium atoms, having a weight of four times that of an atom of hydrogen. They are liberated with an explosive force, and travel at the rate of 12,000 miles per second. The energy of their liberation accounts in good part for the heat of radium, and the force of their bombardment for the immediately superficial injuries (burns, etc.).

The Beta rays are also not rays at all, properly speaking, but a stream of electrons, negatively charged, identified with the Cathode rays (which Crookes originally defined as a "stream of radiant energy") of a mass equal to 1-1700 of a hydrogen atom.

The Gamma rays do not polarize, pass straight by the magnet, are not deflected by the prism; thus they represent waves of ether.

2. *Filtration.* By a filter we mean anything which by interposition may absorb the rays, *i.e.* obstruct their passage. The efficacy of a filter is in proportion to the density of its structure.

Alpha rays, being particles all travelling the same distance at the same rate, would be stopped short by a small obstacle; thus a sheet of paper is sufficient or, in actual use, the epidermis.

Beta rays, on the contrary, show all degrees of penetration and are roughly divided into hard and soft rays.

Gamma rays have been given the name of *surpénétrant* to denote their vastly preponderating degree of penetration.

If you make mere distance the filter, then Alpha rays are cut off by 3.3 cm. of air. Beta by about three times that amount, and on the contrary Gamma rays (as from 1 gm. of radium) would reach a distance of 100 meters and affect the electroscope; or travel 3 + m., penetrate a man and cause fluorescence beyond him. The ratio of penetration of Alpha, Beta and Gamma rays may be expressed by 1:100:10,000.

Simple filters for the Alpha and softer Beta rays are lead paper and rubber tissue or mica. The metals furnish the common filters, however, viz., silver, aluminum, lead, and more recently gold and platinum (half the bulk of lead).

1/20 mm. aluminum screens the soft Beta rays.
1/10 mm. aluminum screens the medium Beta rays.
1 cm. lead screens the hard Beta rays.

Gamma rays need 5 cm. of lead for practically complete absorption though a small fraction will still be left with 10 cm. These figures must be regarded as somewhat flexible.

Thus we see that it is possible to vary the quality of the rays by filtration. But the total rayage may be extraordinarily influenced by filtration. Of the total rayage without filtration

there are 90 Alpha particles to 9 Beta rays and one Gamma ray, but even with thin metallic filtration the figures for Alpha and Beta change places and the Gamma rays may come up to ten. Under strong filtration (5 mm. lead) a total of 600,000 rays is reduced to 5000 (Gamma). One other class of rays there is, viz., "secondary"—created when a metal filter is used. These are called Rayons de Sagnac. They are very irritating, but may be easily screened by a sheet of black paper, 20 sheets of writing paper or 4 mm. of cotton.

3. The third factor in radiation is the density and the composition of the radiated tissue. This is a very important item in the therapeutic use of radiation, because one of the obstacles to greater success has been the comparatively limited localization of its effects. The skin, for example, absorbs two-thirds of the rayage (the negro's skin more). It is thus more difficult to radiate, *e.g.* a gland, through the intact skin (though glands can be absorbed without injury to the skin). Wickham reports, however, a mediastinal tumor improved as to size and alleviation of pressure symptoms.

Wichmann showed that pathological tissue absorbed rays in much greater measure than did normal tissue. Lupus Vulgaris absorbed double in comparison with the neighboring normal skin. It has been calculated that 1 mg. radium will send penetrating rays to a depth of 2 mm. of pathological tissue; with large quantities, 2-2½ cm. of pathological tissue, is the degree of depth usually attained, though influence to a depth of 5 cm. has been observed.

The discharge of Alpha particles has been called the most intense liberation of power in nature. Kinetic energy is their especial characteristic. They account for most of the heat of radium,—their ionization power is such that they have to be screened off in the electroscopic quantitation of radium and their chemical energy evidences itself in catalysis. They must then be irritating and destructive to normal tissue (and to growths perhaps even stimulating); therapeutically they must in the main be rejected.

Soft Beta rays are in much the same category, but the hardest Beta, which are also much more penetrating are analogous in effect on pathological tissue to the Gamma rays. Gauss makes especial use of them and Knox thinks they ought to be more used.

The Gamma rays, however, it is agreed, have the most pronounced therapeutic office. As we have seen, they penetrate a great distance but, their quantity being small, it by no means follows that they will act curatively. The problem is, then, to produce a summation of Gamma rays within a given district. This summation will be a product of intensity (amount of radium), filtration and exposure period. Happy assistance is effected by the use of "cross firing." This refers to the focusing of Gamma radiation from several independent sources and in different diameters, upon a given district.

Gamma rays may easily be shown to have a predilection for cancer cells, especially in proportion to their youth, embryonic character, or developmental state, and under the microscope these may be seen to split nuclei, develop vacuoles and lacunae, and finally to disappear. Furthermore, young connective tissue cells in the neighborhood may be observed developing and multiplying vigorously. Their growth leads to isolation of cancer groups. This is the essence and rationale of the favorable action of radium on morbid tissue. Good tissue elements are stimulated, morbid tissue elements withered and retired.

Resumé of the Results in Radiation. The use of the rays of radium dates from as far back as 1902. At first entirely unmethodical, their employment necessarily could not be productive of substantial results; and it was not until the discovery by Domenichi and the French School that the penetrative Gamma rays far exceeded the others in therapeutic scope and that they could be isolated through means of the thick filter, that the success of today gave promise of achievement.

Much experience by many observers in many thousand cases has set beyond all cavil the marvellous power of radium to demolish growths and conditions of simple and intermediate nature. From warts to non-infiltrating carcinoma, its value has been established as almost infallible. We see exaggerated cell growths blown to smithereens, as it were, by dynamite.

Warts (Abbé) encountered in all situations and of fancy sizes, have been disposed of mostly with one exposure. In ten years he has radiated five hundred cases of epithelioma, superficial cancer and sarcoma "with ever increasing success." He attributes most of his failures to inadequacy of dose or a lame method. Recurrent papilloma of larynx, cousin germane to cancer, he cures with one exposure (100 mgms., 30 min., entirely absorbed in eight weeks), and sarcoma of eyelid (previously x-rayed), disappears with four hours' exposure. Kelly scores a 96% of success in skin growths. Schindler (in a very "meaty" contribution to Radium for October and November (1913) says he has "frequently removed the benign epithelioma of the face (Epithelioma perlée) with an exposure of an hour." And so in angiomata and keloid and rodent ulcer the success has been eclatant.

In skin diseases, especially of the ichthyotic type, psoriasis, lichen, scleroderma, etc.; neuroses with accompanying eruption, eczemas, pruritus, essential or with varying eruptions, radiation has been well tried out and its success is undoubted and substantial. Apart from the question of success, however, radiation has the greatest possible advantage over other means in its notable celerity and simplicity. Its convenience of application alone (it has been called *therapie de poche*) entitles it to decided prefer-

ence, other things being merely equal. One of the most pronounced efforts of the rays may be mentioned as well here as anywhere, viz., its local soothing effect on disturbed nerves. This makes of it almost a specific in the control of an essential or symptomatic pruritus or as an analgesic. Its antipruritic effect of course, makes it extremely satisfactory in relieving an important symptom, while effecting the cure of the underlying lesion. All observers agree as to the extraordinary analgesic effect of radiation. Thus in all neuralgias, especially in sciatica, and in the often terrible pain of new growths, it is capable of rendering remarkable service. An incurable cancer case can be kept comfortable with radiation. The pains of tabes have been relieved in four minutes.

How stands the case between radium and deeper malignant processes? Very much more definitely may we speak than we were in a position to do one year back. The adaptation of those principles which we have spoken of above under the general consideration of rays and radiation, viz., massive doses, heavy filtering and long exposure to the Gamma rays have been productive of results so marvellous that one is not to be blamed for an *a priori* incredulity.

All Europe is aflame. A veritable *radium-fieber* rages. The supply of radio-active material is exhausted and large ready-available funds cannot as yet be expended. All this might be the case with mere hanky-panky on a large scale, but it would be highly improbable. Fortunately the accounts of results leave far less than the usual room for doubt, even from a highly skeptical viewpoint, and it will scarcely do to say in our haste "all men are liars." A highly impressive feature of various reports, as for the pelvic region, *e.g.*, is their striking unanimity. Only here and there is a discordant note. In the face of very enthusiastic accounts by other speakers Nagel rises to say he has gotten no such results. Falk, who denies the specific action of radium, says that after radiating a number of cases of cancer with 50 mgm. radium he never had a complete cure; but in the light of the overwhelming testimony of great surgeons, such as Kramer of Greifswald, Kroenig and Gauss of Freiburg, Doederlein of Munich, and many others, we are justified, at least temporarily, in questioning if methods may not be at the bottom of failures, because so little would make so great a difference in results. Thus Meidner, after being unsuccessful in a number of cases, scores at last a brilliant coup with 30 mgm. radium in a "stinking cancer of cervix." The writer has talked with one man who, voicing disappointment as to his own experience with radium, may be said simply not to have used it.

One of the advances of the past year centres about the coöperation of surgery and radiation. Indeed, there is a good deal of plausibility, not to say cogency, in the view of one operator that radium ought to be in the hands of surgeons and not of radium institutes, towards which the tendency of present fashion veers. Thus we find the London Radium Institute reporting none too favorably on cancer of the rectum, while, on the other hand, Abbé, a seasoned surgeon, with a ten-year experience with radium, is most enthusiastic. The dose should be large, the filter at least 2 mm. lead and the apparatus be left in 8-12 hours at intervals of several days. Kroenig reports a case of large proliferating cancer of rectum cured, with freedom from relapse maintained for six months prior to date of publication.

But consider the importance of method! The radium tube must be placed accurately in the lumen of the stricture within the confines of the tumor—failure to do this is certainly going to result in failure, even perhaps to lead to perforation as a result of injury to sound tissue. So that here again positive evidence carries much further than negative.

The danger of perforation attaches to the radiation of all cancer of the gastro-intestinal tract. Thus Exner of Vienna reports two perforations in twenty cases of esophagus cancer. Schindler has observed one only, and that also in the esophagus, but calls attention to the difficulty of distinguishing from a perforation ascribable to the disease.

Besides the twenty esophagus cases, Exner has radiated forty other deep lying carcinomata in the last ten years. In only two did they remain longer than three years without recurrence, and these two finally showed return in, respectively seven and nine years. This illustrates the necessity of caution in speaking of a cure by radium. (One of the earliest cases radiated—sarcoma of lid—recurred only after ten years). There is a good deal to confirm the hypothesis that the connective tissue, the formation of which is stimulated by the radiation, spreads a net to catch the unabsorbed cancer *reliquiae* and so to prevent metastasis. In sixty deep lying cancers, Exner reports that, with the exception of the two mentioned he could not speak of cure, but of an essential improvement as to local symptoms and duration of life. In cancer of esophagus a preliminary x-raying should be made in order to place the radium within the growth and stricture.

Of cancer of the mouth, esophagus and stomach, Abbé says he is not yet prepared to speak. Of course one obstacle in the way is the inaccessibility of these regions and in consequence, unmanageability of the radiation. Surgery will undoubtedly coöperate in the future as in two recently reported cases of gastric carcinoma, by Julien; a laparotomy was done and the tumors radiated forty-eight hours through the wound by a radium tube enclosed in a catheter—radiation was also continued from the surface. Cures were said to have been obtained.

Cancer of the breast has not been radiated on a large scale, probably on account of the long established prerogative of surgery in the region.

Splendid results, though, have been obtained. Kroenig has in his series a case radiated after laying back a flap of skin—no return at time of writing, nine months after—so a cancer *en cuirasse*, rejected as inoperable, he has cleared up with no return in five months. Abbé reports brilliant results in myeloid tumor of jaw and round celled sarcoma of humerus, with no return in nine years.

But it is more especially in the pelvis that the great advances of the year have been made. By using much larger doses, by heavier filtration, by massing rays, by using a number of packages to serve as a battery, by cross firing, by invoking the aid of surgery to make growths more accessible, by a longer exposure, very remarkable results have been obtained. Kroenig has made the most considerable report with 146 cases (including cancer in eleven regions referred as inoperable from surgeons—in these he is not ready to report except in the eclatant cases cited above).

In 56 cases of inoperable cancer of the uterus 15 were healed so far as good health and histological negation confirmed, the longest absence of recurrence at time of report being 16 months.

If we can do this, why not radiate so-called operable cases—the rate of mortality is large, and, furthermore, classifying them as operable is only to speak surgically, not to guarantee against recurrence. Sixty per cent. recur within the year (when they become inoperable, as a rule, and are considerately passed over to radium). And most of the cases that have been loaned to radium, so to speak, are not only inoperable, but almost untreatable. They stand for the "abomination of desolations." Yet de Courmelles reports out of 100 inoperable cases, 70 improved, with the gain held for from one to four years, and that with only 50 mgms. radium within the uterus twenty-four hours every month. Jacobs of Brussells reports among 120 cases, 24 cases of uterine-wall cancer, all favorably affected. All observers agree as to the great improvement that can be effected in forlorn inoperable cases; their desperate plight can always be relieved by staying the hemorrhage and discharge and by absolutely relieving the pain. Now what might not be the toll of radium if operable cases could be included; many of those of the fundus and parietes are but thin in tissue, a condition that radium might easily influence.

The interrelations of surgery to radiation have been better established in the pelvis than elsewhere. Pre-radiation of a tumor can make a tumor operable by causing the absorption of inflammatory exudate, by creating mobility and accessibility and by removing discrete foci and glands, as in the broad ligament and vagina. Thus Kroenig speaks of making a tumor non-malignant in two weeks. He believes that many operable cases ought to be first radiated, because there is no loss of time. Radiation has dried up the secretion of cancer in three weeks. In five and one-half weeks Kroenig has seen a large cauliflower of the cervix replaced by an normal cervix and only a delicate mark for scar. This case was at time of writing four months free.

So the modern operators go far. They dissect, they bury tubes in the tumor, they radiate before operating, they radiate in the operative wound. Kroenig radiated 64 against recurrence; at time of writing, 20 were still alive with no return, 13 more than a year.

Kroenig has used the most massive doses, even 800 mgms. of radium and mesothorium, sometimes separately, again in combinations with x-ray. He has left in tubes eight days, and he speaks of "Gamma therapy" because of his reliance on Gamma rays solely.

But Bumm begins with a thin filter and the Beta rays, applying very closely to diseased tissues, but protecting healthy with lead—after ten days he uses larger doses and a lead filter. His large dose averages 150-300 mgms.

Other Radiation. Much other radiation has been undertaken and much will be, since dissection and the burying of the tube in the tumor have come into vogue. Thus Turner reports a case of recurrent lympho sarcoma of axilla cured. The tube was buried in the mass and the glands radiated from without; then the glands, having isolated themselves, were dissected. Of this case Prof. Alexis Thompson says, "This was clinically and histologically a round celled sarcoma. Untreated, the duration of life would have been put at three months." Even a tumor of the hypophysis with gigantism has been radiated and benefited.

Domenichi, one of the oldest operators, reports favorably on exophthalmic goitre, using mild radiation and believing the benefit to lie in nerve influence. Turner reports four cases very decidedly influenced; they were inveterate, from two to seven years' duration. Turner thinks his radiation influences blood supply and connective tissue.

Domenichi has radiated the joints of gonorrheal rheumatism, especially small joints, and made brilliant cures, the pain being at once controlled.

In special work a considerable use has been made of radiation. In the eye, many chronic diseases, involving low grade inflammatory conditions, ulcerations, pus formation, catarrhal processes have been cured. A smallish quantity of radium has been used and the tube applied directly to the eye. Enough use has been made of it to show that there is no danger to the mechanism or power of the eye itself. Koster of Leyden reports a clinic in which radiation was used for practically every disease of the eye and surrounding parts.

In the ear there have been recently reported two series of cases of chronic deafness, with or without active processes, the radiation of which was attended by a decided degree of success. A small quantity of radium is applied to the mas-

toid, the external ear and even to the middle ear, all with short exposures.

In the pelvis other diseases than cancer have been freely treated, such as metrorrhagias, metritis, myomata, and great success has been reported by many observers, particularly with smaller fibroids, and when these conditions cluster around the menopause. A moderate amount of radium is used which may be either inserted into the uterus or placed so as to radiate the ovary. Some speak of securing a catamenia precox.

X-ray and Radium. One of the curious facts in the history of radium is that the Gamma rays, which could penetrate a wall or a man or 15 cm. of iron, were thought at first to be of no account. Since then study of them has shown their practical identity with the x-ray. But there are important differences. The softest Gamma ray will penetrate much farther than the hardest x-ray. Lazarus estimates them as 40 times as penetrating.

While the x-ray is an application of artificial radio-activity the radium tube is a "portable Roentgen bulb," *i.e.* there is obviously no comparison between them as a matter of convenience. Again the x-ray is but a single beam, and it takes "many a little to make a mickle"; its action is necessarily very slow if required for much tissue. Compare the method of burying a radium tube in morbid tissue and taking advantage of its uniform radiation in all directions, with the x-ray necessarily having to overcome the resistance of other tissue. The use of heavy filtering is very destructive to the x-ray apparatus. Bumm finds the x-ray "dear and tedious," but expects much from a combination of radium (quick) and x-ray (slow). Albers-Schönburg advises small doses of x-ray and long radiation in myomata, which means for him an eight months' process. Furthermore, great damage has been charged up to the large doses of x-ray that have been used in the last year. Schmidt calls attention to the danger of late effects and damage to inner organs. He has seen persistent diarrhea three months after cessation of raying; also rapid degenerations and perforations.

Injury from Radium. Alpha and soft Beta rays as well as the secondary rays, will all produce an impression on the skin varying from erythema to necrosis; but so well are the laws of screening now understood that it is entirely unnecessary to produce more than a slight erythema, which must be expected when heavy doses and long exposure are used for deep penetrating effects. The sensitiveness of skin varies according to age, old skin being very tolerant. The mucous membranes are more tolerant than the skin. After considerable rayage the skin develops a super-sensitiveness which must later be taken into account by lessening the rayage toward the end of treatment. This acquired supersensitiveness becomes more or less permanent and may be an obstacle in secondary treatment of recurrent neoplasms.

In the course of treating large surfaces, as lupus or a large tumor with long exposure, a condition of apparent sepsis is often observed. The temperature runs high, the patient falls into a condition of lassitude and depression. Knox has observed this in rectal cases.

There have been some perforations of hollow organs reported, some of blood vessels with hemorrhage; but Schindler, on the contrary, says that, by careful management, he has actually cured an involved blood vessel without disturbance.

The scar after radium ought to be almost nil, neither raised nor depressed, and the cosmetic result equally satisfactory,—neither pigmentation, hairs, or telangiectases. That is all a question of proper management.

Finally, radium may blow hot as well as cold, and occasionally stimulate a growth. The reaction of cancer to the radiation varies much, according to the nature of the tissue. More mature cells are more apt to be stimulated. Schindler believes that with smaller doses the Gamma rays for the most part exert their effect in the periphery, while stray rays striking into deeper regions, exert a stimulating effect. He emphasizes the necessity of securing uniform concentration in the whole area under radiation —a condition that is well secured by burying the tube.

Dose. It is often asked with how little radium can one work? Kroenig, as we have intimated, has been working with very high doses, even up to 800 mgms. radio-active material (radium and mesothorium). But Bumm with 500 mgms. and 2 mm. lead filter, reports a lack of toleration even after ten hours' action—fever with bloody tenesmus, an inflammatory exudate, with in one case a sterile abscess. He, therefore, sees no advantage in large doses, but prefers 150-200 mgms. Lazarus warns against small doses, as being stimulating and irritating, and as increasing metastasis, his minimum being thirty mgms. Wickham warns against too much. The case (for cancer) is well summed up by Schindler, who thinks the required amount is adjustable to the effects. If, he says, you have an amount which with continual radiation can destroy a cancer in three to four weeks, you have enough; it being immaterial to his mind whether the effects are attained by smaller (though considerable!) quantities, used through longer periods or a large amount, *e.g.* several hundred mgms. used for correspondingly shorter periods. According to Schindler, several applicators of each about 15 mgms. of "radium element" are sufficient, if they are used continuously day and night.

It will be observed that Schindler uses the term radium "element." This refers to the international standard prepared by Mme. Curie, by which all parcels of so-called radium ought to be reduced to their equivalent in radium ele-

ment. We ought to know first, the amount of radium element in the salt used (strength and kind) and second the square surface, if a flat applicator, or the volume, if a tube. Therefore in the following table it must be borne in mind that we are left in doubt as to the relative quantities of radium element that correspond to the so-called radium.

Small quantities of radium may be profitably used. Thus even Alpha rays, though irritant, may be used where the exposure is to be short, as in superficial epithelioma. So Beta rays may be, as in chronic ezcema, with ten to fifteen minutes' exposure. Varnish applicators give forth a large proportion of Alpha rays and are prone to produce an erythema.

In the distribution to the London Hospitals of the radium purchased with the $50,000 London Express fund, the largest single grant was 250 mgms., but the smallest 15 "with which useful work can be done."

Domenichi radiated his small joints affected with gonorrheal rheumatism with 5-10 mgs. 25% salt.

Results have been secured in:—

Granuloma and trachoma, with 1 mgm.
Scrofulous gland, with 1 mgm. (tube imbedded 23 days).
Ear, with 1-2 mgm.
Uterine hemorrhage, with 4-10 mgm (radiation of ovary).
Lupus and angioma, with 10 mgm.
Goitre, with 10 mgm. (tube imbedded).
Metritris, with 20 mgm.
Fibroids, with 27 mgm. (on uterine sound).
Skin and Cancer, with 20-40 (Wickham).

Mesothorium. Mesothorium (really maesothorium) and its decay products have been favorites in Germany this past year, owing to their relative cheapness. Thorium nitrate is produced from monozite sand for the manufacturing of gas mantles and mesothorium comes from the residue left in preparing the nitrate.

Mesothorium furnishes Beta and Gamma rays, the Alpha rays coming from its radium admixture (often 25%) or from radiothorium, (of the series of decay products). Bulk for bulk, pure mesothorium would be very much more powerful than radium because it disintegrates with 350 times the speed, but by one mgm. mesothorium is meant the amount of mesothorium which shows a Gamma rayage equal to one mgm. of pure radium bromide (standard).

Mesothorium has a half period of but 5.5 years, but its activity varies with age and there is considerable difference in activity of commercial parcels. Its activity increases up to three years, owing to formation of radiothorium. Though in some dispute, the radiation of mesothorium and of radium are generally held to be identical. Czerny prefers mesothorium to radium for superficial lesions; radium to mesothorium for deeper. One observes, however, very much more warning of danger from mesothorium than from radium. Thus Bickel (friendly to it!) recommends caution. Has seen atrophy of normal ovary from 30 mgms., and also late disturbing effects. Bumm says mesothorium is tolerated very well by some, badly by others, and reports injury.

Specific Action of Radium.—Many (as does a user of it in our own city) consider that radium acts as a mere irritant or caustic. But there is an almost conclusive chain of evidence in favor of its action being selective.

1. It can cause the retrogression and modification of cells without inflammatory reaction, or the absorption of an angioma without hemorrhage.

2. It possesses the surpénétrant rays, which can act on deeper tissues without surface reaction.

3. It cures pruritus without irritant action.

4. Its irritant effects show a period of latency—thus the evidence of a burn does not appear for from two to ten days.

5. Parts distant from point of application may be affected.

6. Besides causing the absorption of cells it stimulates fibrous tissue to renew.

7. It leaves no such scar as caustics do—a proper scar after radium is neither raised nor depressed, merely soft, supple tissue in sufficient quantity with no tendency to contract.

8. Radio-activity cannot be checked by any chemical agent. The emanation does not enter into any chemical combination. In this it is entirely different from caustics.

Theory of Radium's Action. Radio-activity is a form of radiation activity which is everywhere present and made use of. Radio-activity has been traced in the body and in gall stones. "Radio-activity in the earth and air furnishes the minimal impulse to the liberation of the normal energy of seed and soil. Small wonder if these ethereal undulations (Gamma rays) are the chosen agents of influence and modification of pathological process" (Butcher). According to Lazarus, Radium therapy is a form of light therapy.

In all nature every increase in life is associated with death. Histological cells like men "rise on the stepping stones of their dead selves to higher things" (Butcher). In radiation, cell death is the basis of therapeusis. *In vitro* a division of leucocytes can be started by adding ereolin or exanthin (chemical products of cell destruction). So, after radiation the dead cells attract phagocytes, which gather as to a feast! Thus the cannibalistic theory of Ross.

The vaccine theory fits in very neatly. By irradiation in one part, distant parts are often affected, as in a widespread psoriasis or acne or widespread carcinoma. Now the vaccine theory would say that the patient prepared an autogenous vaccine, the action of which was general. Thus the radium cure is not dependent on destruction or repair, but represents a biological

recoil, the resentment of the cells to insult, as in the case of bacteria and antibodies. And it must be said that the latency of the burn and its subsequent action in respect to stages and scabs (much resembling cowpox vaccination) lends color to the theory.

To take leave of radium radiation: there is nothing in the above account of its powers and prowess that puts a veto on its claims to have preëmpted a distinct field in therapeutics. Making all allowance for the first flush of enthusiasm and for the jeopardy of human observation, there is no escaping the conclusion that it can lay a healing touch upon varied pathological conditions and that its operations well deserve the motto, *Cito, tute, et jucunde.*

(To be continued.)

A STUDY OF CANCER.

BY SEELYE W. LITTLE, M.D., ROCHESTER, N. Y.

(Continued from page 130.)

Two cases under treatment since this paper was written interestingly confirm this idea. One is a case of cancer of the stomach, bile passages and the pancreas. Two years ago the urine of this patient contained sugar. For a year and a half there has been no glycosuria.

The other is a case of cancer of the rectum. This man had diabetes for several years, with cataract and finally a rectal fistula. A year ago he "recovered" from his diabetes to the elation of his physician. But at about this time his rectal trouble began and he now has an inoperable rectal cancer.

Since observing these cases we have tried without success to obtain a reliable preparation of the islands of Langerhans. As observed elsewhere, there has never been much success derived from the use of a supposedly "aiding" secretion or of a supposedly "antagonistic" secretion in cases of hypo or hyper secretion of another gland. The faulty gland itself must be "aided" by its own kind of secretion or antagonized by partial removal.

Our own experience confirms this. We have had the least success with endodermic cancer where we had to use the "aiding" parathyroid. We certainly desire urgently a reliable active preparation of the islands of Langerhans.

The gastric and intestinal mucosa internal secretion may be eliminated as their function seems to be wholly concerned with the regulation of external secretions, notably the pancreatic juice.

There remain the parathyroids. As to the effects of over-secretion of these organs we know very little, but the condition doubtless sometimes exists. It seems generally agreed that these organs have something to do with calcium metabolism. We do know by painful experience, however, that parathyroids are essential to life, for if removed entirely the individual dies very soon in a condition of tetany. It is interesting to note that experimentally life in parathyroidless animals may be prolonged by the administration of lime salts. For our purpose it is also interesting to recall that if adrenalin be injected into a normal person, sugar promptly appears in the urine. If the parathyroids are absent this sugar effect of adrenalin is enormously increased. And by the way, if the thyroids are absent, glycosuria is almost impossible from the injection of adrenalin. Now in this case we secured the prompt glycosuria of adrenalin injection, so certainly there could not have been a large degree of hypothyroidism, but there might easily have been hypoparathyroidism. Further, such a condition would account satisfactorily for the hyperglycemia of cancer, granting that the suprarenals are normal, for a normal supply of adrenalin would be relatively an oversupply if there existed an undersecretion of parathyroids.

The characteristic results of total failure of parathyroids, namely tetany, suggests another explanation of the hyperglycemia of cancer. We cannot assume, of course, a total failure of the parathyroids, merely a relatively partial failure, so that we should expect an effect on muscle far short of tetany but of the same nature, *i.e.* a too rapid exhaustion of muscle. Exhausted muscle (as in fatigue) calls loudly, perhaps by its waste products, for more adrenalin, which in turn tends to make more sugar appear in the blood. And we know the muscles like to keep a supply of glycogen on hand. We know by experience also that sugar taken by the mouth relieves fatigue. Exhausted muscle calls for sugar. Certainly our experience shows that most cancer patients naturally crave sugar. So the hypoparathyroidism seemed a reasonable theory. It might also partly explain the well-known lassitude existing in the early stages of cancer or even before cancer is suspected.

Therefore the tongue case was started on parathyroid extract gr. 1-20 four times a day. This was Oct. 1. He was told to stop the sugar and the adrenalin. On Oct. 7 pituitrin was added empirically in view of the remarkable effects observed in the skin case. This in spite of the fact that the tongue and the pituitary body are of different embryological derivation. It was deemed best, nevertheless, to make the experiment. This was encouraging in one way, though disappointing to the patient. Sugar promptly appeared in the urine, confirming our theory,—pituitrin was stopped.

Two very suggestive cases should be mentioned here to demonstrate the intimate and vital relation between lime metabolism and sugar metabolism and the relation of each to cancer.

The first case is one of demonstrated uterine cancer operated upon several years ago by Dr. Hastings. This patient some twenty years ago broke her leg. For no known reason union was very slow, over a year being required for even a

fairly good result. In view of our present studies this seems to have been simply a case of very poor calcium metabolism. The patient has always been and is still fond of sweets. That is, this case tends to show that poor lime metabolism and very active sugar metabolism in a person in middle life furnishes a favorable condition for the development of cancer. One will find, as the writer has repeatedly observed, that cancer patients are usually fond of sweets.

The other case is typically one of moderate hyperpituitarism. He is a young man showing every sign of this condition. He has diabetes insipidus, bilateral temporal hemianopsia, a wide sphenoid. Also, an interesting fact, he has five lower incisors; otherwise he would have the characteristic spaced teeth. Finally, he never cared much for sweet things. He never takes sugar in coffee, for example. This man very recently broke his leg, and a very remarkable thing happened. While the very rapid repair was going on, showing extraordinary lime metabolism, the diabetes insipidus disappeared! This is interpreted to mean that while the extraordinary call for lime salts was readily met, the pituitary was so busy with this extra work that it could not also show at the same time the characteristic polyuria of hyperpituitarism. In four weeks the bone repair was perfect (x-ray proof), no pain, patient walking.

As a suggestion in passing, may we not utilize pituitary extract in most fracture cases to hasten recovery and especially in cases of delayed union? May we not do the same in bone grafting? In rickets and other allied conditions of defective bone development? The field is very wide. The more the relation between lime and sugar is studied the more is one impressed with its importance and with the possibility of practical application in very many diseases of faulty metabolism. In the list of such diseases besides cancer and diabetes may very possibly be found such apparently widely different conditions as psoriasis, arterio-sclerosis, rheumatism, decaying teeth, baldness, some cases of nephritis, obesity and a host of other diseases, the management of which is at present largely unscientific, unsatisfactory and empirical.

CASE 1. Mar. 1, 1913. Miss H. Age about 45. For about a year has had a severe menorrhagia. For about 6 months bleeding not only at regular times but irregularly between times. Was examined by Dr. McCauley who said she had a fibroid. Refused operation. For past 3 or 4 months has had also an irregular yellowish red foul smelling discharge. All the time more or less has had pain and swelling (not altogether oedema) of both legs with severe pain in muscles of both legs. Treated for rheumatism.

Then in January, 1913, began to fail rapidly in flesh and strength. Went to Homeopathic Hospital under Dr. McCauley. Grew steadily worse. In February left hospital, discharged doctor and friends sent for me.

I found her semiconscious, very anemic, weak, pulse rapid and weak. A large smooth mass corresponding to enlarged uterus, a thin foul-smelling discharge from vagina, legs swollen and tender.

Diagnosis—Fibroid with superimposed cancer of utterus.

Prognosis—Death very soon.

Treatment. At first stimulants. Then a little food as she regained consciousness. Finally sugar in excess by all possible means, candy, grape-juice, sweets and all she could use on cereal, in coffee, etc.

Result. Steady improvement in every way. In April she walked several miles, came to office and had gained not only strength but 20 lbs. in weight. In May she pronounced herself well. Since then I have only seen her casually on the street.

The fibroid is there but smaller. There is no bleeding or other discharge and very little swelling of legs.

Clinically this is a case of cancer of the uterus which has recovered. Unfortunately, I have no scientific proof of it. No microscopical examination was made because the case seemed hopeless. If it was indeed cancer, and if our present deduction that cancer is due in this case to hypo-secretion of a ductless gland of mesodermic origin (the uterus being mesodermic) then a seeming difficulty arises, for in this case we acted on the hypothesis that we were dealing with hyper-secretion of some sugar regulating ductless gland which also controlled growth. The idea was to give the gland so much work to do attending to the sugar function that it could not also stimulate growth. We had vaguely in mind the suprarenal and the pituitary, but we were working in the dark. Now the only ductless glands of mesodermic origin are the cortical portion of the suprarenal, the coccygeal body probably, Leydig's cells of the testicles and the ovaries. Leydig's cells being ruled out and probably the coccygeal body, there remain only the cortex of the suprarenal, which is not at all understood as yet, and the ovary. We know that suprarenal extract in excess tends to produce hyperglycemia and it is most suggestive that ovariotomy is followed by hypertrophy of the cortical portion (mesoderm) of the suprarenal. Therefore hypo-ovarianism, our present tentative hypothesis as to the ultimate causative agency in producing uterine cancer, might easily produce the characteristic hyperglycemia of cancer by first causing hyperadrenalism. Personally I should be strongly inclined in the next case to give ovarian extract.

How could the administration of sugar then have brought about this possible cure?

Several explanations seem possible. In the first place, remember that all our cases showed remarkable initial improvement with subsequent backsliding (except this first case) on the sugar alone. It is conceivable that in the first case the initial gain was just what was needed to turn the scales between cancer growth and no cancer growth, by enabling the relation between hypo-secretion of the ovary and hyper-secretion of the suprarenal cortex to become normal again. This might have happened by overwhelming the suprarenal with sugar work and

thus soon bringing about its atrophy to a degree parallel to the assumed hypo-secreting ovaries. This, of course, is somewhat speculative.

At any rate, the remarkable initial gain in all the cases on a liberal sugar diet is worth considering briefly. I believe the explanation is somewhat as follows: During the growth period sweets are eagerly sought by almost all children. Violent exertion uses up adrenalin, calls for sugar from stored up glycogen, and the system subsequently craves carbohydrates to replace the used-up glycogen in liver and elsewhere; and calls on the suprarenals for more adrenalin. The muscles call loudest for all this. In this connection recall the well-established endurance and lack of fatigue in recent tests on strict vegetarians.

In cancer we have a riotous growth. Therefore a call for sugar, therefore a hyperglycemia but no diabetes because the extra sugar is pounced upon by the growing cells. Sugar is taken from the other body cells so that they do not get even what they require. Therefore they grow weaker and weaker, our well-known cancer symptom. Now give such an individual enormous amounts of sugar. At first the cancer cells are taken by surprise; they have all they want and more. This excess is greedily used by the sugar-famished body cells and they recuperate to such an extent that they all functionate better; even the hyposecreting ductless gland at fault does better work and the cancer cells actually begin to deteriorate under this influence. But with all this extra food the cancer cells soon begin again to grow and to multiply more than before and the short spurt of improvement is over, unless, as assumed in this first case, the improvement is enough to enable the system to obtain complete mastery over the cancer, a necessarily rare occurrence. But that would explain the rare cases of spontaneous cure.

Therefore at present I would be inclined to give the sugar for a short time in order to take advantage of this first gain, but I would also administer in some way an extract of the hyposecreting ductless gland.

CASE 2. Dr. Hastings' patient. Cancer of stomach—inoperable.

Declined treatment after a short trial.

CASE 3. Dr. Hastings' patient. Male. Cancer of stomach—inoperable.

In first month gained two pounds, had no pain and growth palpably smaller. Then initial gain was lost and the patient followed the usual course and died except that there was a noticeable absence of pain and the growth certainly seemed smaller.

CASE 4. April 12, 1913. Mr. P. Age 73. Cancer of skin over sacrum on site of old bed sore contracted in hospital in Civil War times after severe wounds. Growth has been present over two years, gradually growing. At present the whole ulcerated sore measures about 7½ cm. in greatest diameter. This sore is fringed except at top by cauliflower masses. Size of largest mass 2½ x 3 cm. Microscopical examination by Dr. Casey showed typical epithelioma.

Patient also latterly has had diarrhoea and very imperfect rectal control. The assumption was that he had beginning metastasis in the gut.

I have photographs of this case. Also the slides showing microscopical structure.

Treatment begun as usual with addition of sugar as a dressing locally.

May 16. Largest diameter 7 cm. Largest mass 2 x 3 cm. Whole area looks better and masses in general are certainly smaller. But there appear to be new masses coming in the centre of the ulcerated area and the whole sore seems deeper.

Aug. 20. Largest diameter 7 cm. Largest mass 2 x 2½ cm. But central mass persisting and patient is plainly losing weight and strength. He looks badly. Began with pituitrin internally.

Sept. 29. Entire area of ulcer same size but much healthier looking and healing begun at edges.

All the cancerous tissues have shrunken remarkably and the sore is shallow instead of deep. The masses are discrete instead of crowded together with deep sulci between. The largest mass is ½ x barely 2 cm. and not nearly so thick. The whole appearance is changed. One would say that the cancer is disappearing. And yet the man looks badly as he is thin and weak.

At this time (Oct. 1) he was advised to stop taking sugar internally and to eat fats and proteids largely. He was given also strychnine.

On Oct. 5th strychnine stopped and parathyroid begun with the idea of stopping muscle waste.

Oct. 14th. Stronger, eating better.

Since October 14th this patient with short periods of improvement in general health steadily failed in spite of the remarkable disappearance of the cancer. He ate and slept well and was free from pain. On November 27th he died. His only symptoms during the last two or three months of life were polyuria, loss of weight, and especially progressive asthenia of body and mind. The muscular weakness was most marked in the legs. All of which is suggestive in this case of hypopituitarism. We should perhaps have given very large doses of the gland.

Autopsy by Dr. Casey (friends allowed the head only to be examined). Cavity of Sella very narrow fore and aft (.5cm.). Narrowing caused by great increase in bone forming posterior part of Sella. Pituitary body .5cm. x .75cm. about one half normal size. (Biedl.) Microscopical examination (Dr. Casey). (Zenker's fluid—Eosine and Haematoxylin Stain.)

Pars anterior—Eosinophile cells scanty—nuclei ill defined. Cyanophile cells—none observed. The bulk of the cells seem to be of the chromophobe variety. No colloid.

The posterior portion conforms well enough to the histological descriptions except that connective tissue seems largely to have taken the place of the neuroglia.

Inasmuch as histologists differ as to what is normal and our own experience is very limited in this matter we cannot venture any conclusions from the microscopical examination except that absence of colloid and of all but chromophobe cells together with the small size of the gland seem enough to assure us that there was indeed a hypopituitarism.

CASE 5. Dr. Nugent's case. Woman. Aged about 60. Cancer of the oesophagus, with microscopical proof.

Treatment begun about April 16. This patient also was relieved of pain in swallowing and the growth seemed smaller. But she, too, after this initial improvement grew worse and died in the summer of a metastasis in the lung.

CASE 6. Dr. Roseboom's case. May, 1913. Male, 64. Cancer of tongue. Two years' duration.

Treatment begun as usual and the same prompt initial effects observed. Patient said masses seemed flattened out and he had no more pain. But in August when I saw him the regular retrogression had begun.

For reasons given in the body of this discussion we gave him first adrenalin which promptly produced its characteristic sugar effects; then adrenalin and thyroid. No improvement at all. In fact the pain was returning and he complained of feeling weak. Then he was given parathyroid and advised to stop the sugar. This was Oct. 1st.

Oct. 15. He has gained in weight 1½ lbs. in 1 week and feels stronger.

CASE 7. Dr. Jameson's case. Inoperable cancer of pylorus, gall passages and head of pancreas. Exploratory incision and later gastroenterostomy to relieve the obstruction. Patient's family told there was no hope of saving life. As often after such an operation there was improvement and the patient asked if she might eat candy. Dr. Jameson who knew of my first case, urged her to eat all she liked and other sweets too. Now, some six months later, she seems well and no mass can be felt. Of course the mass may have been largely inflammatory and no microscopical examination was made. But in the opinions of the very competent surgeons who saw the mass at the two different operations, there is no doubt at all.

CASE 8. Cancer of the breast. Dr. Mulligan's case.

Small nodule removed November, 1912, as precaution against possible cancer. Examination proved it to be actually already a cancer. In April recurrence with involvement of axillary glands. An extensive operation was then done and the patient subsequently given large amounts of sugar. There has never been an alimentary glycosuria produced, the patient has gained fifteen pounds, and there is as yet no sign of return.

These last two cases would seem to indicate that our experience in the first case cannot be so rare after all. The time is too short, however, to draw any certain conclusions.

(To be continued.)

HOSPITAL CONCERTS FOR FEBRUARY.—The concerts of the Boston Hospital Music Fund for February have been announced as follows:—

Feb. 1—Boston City Hospital (second visit).
Feb. 8—Home for Aged Colored Women.
Feb. 13—State Asylum, Bridgewater.
Feb. 15—Collis P. Huntington Hospital.
Feb. 22—Children's Hospital.

Medical Progress.

FOURTH REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

BY ROBERT B. OSGOOD, M.D., F.A.C.S; ROBERT SOUTTER, M.D., F.A.C.S.; HERMANN BUCHOLZ, M.D., HARRY C. LOW, M.D., BOSTON.

(Concluded from page 135.)

CONGENITAL DISLOCATION OF THE HIP.

Hayashi and Matsucka[30], [31] have studied the relation of heredity to congenital dislocation of the hip, reviewing the literature from the time of Paré. Among the authors' 230 cases, 14 they considered hereditary and 4 familiary. They have also noted the association of other congenital deformities with congenital dislocation of the hip. Twenty-five of their 230 cases showed other deformities and they have collected 140 cases showing other congenital defects from an extensive review of the literature. Contractures of the legs in hyperextension and outward rotation of the hips are the most common deformities, and club foot, genu recurvatum, spina bifida, and wry neck follow in the order given.

Galeazzi[32] believes that antetorsion of the upper end of the femur is the chief factor in the deformity of congenital dislocation. The method of reduction which he follows is based on this belief. He first inwardly rotates in proportion to the amount of antetorsion. He next slightly flexes and abducts, applies slight traction, and exerts pressure on the greater trochanter. The method is useless, (1) in cases with marked relaxation of the capsule and ligaments, (2) in cases with rudimentary development of the acetabulum, or (3) in cases when after the rotation the distance between the femur and the acetabulum remains unchanged. His first plaster is applied in inward rotation with slight flexion and abduction. In from 12-15 days a control x-ray is taken and a second cast applied to remain on 60-70 days. At the end of this time a third cast is applied with less abduction and flexion. He reports 30 cases successfully treated by this method.

Lorenz[33] thinks that many cases showing a moderate amount of antetorsion do not need special consideration because the chances of spontaneous correction of the deformity are fair. He admits, however, that in marked antetorsion something must be done to secure good final function. To overcome the difficulty he reduces the hip and stretches it sufficiently so that it slips in and out easily. He then performs a supracondylar osteoclasis and outwardly rotates the lower fragment as much as is necessary. The hip is now finally reduced and plaster applied. In certain cases in which the reduction has proved too difficult to be safe after the os-

teoclasis he corrects the position and three months later, after the fracture is firm, he makes a final forcible reduction.

Ludloff[34] still maintains that in many cases the bloodless reduction does not avail, and in these cases he makes the reduction by open operation. He uses an anterior incision about five inches long, starting from Poupart's ligament and continued down along the outer border of the adductor longus. He believes that this incision offers the best opportunity for clearing out the interposed capsule and deepening and moulding the anterior wall of the acetabulum. He cautions against "boring out" the acetabulum, which leads to ankylosis.

Bibergeil[35] has studied the late sequelae after the reduction of congenital dislocations of the hip. He finds that frequently quite marked changes resembling arthritis deformans and coxa vara and valga occur. In many of these cases the function of the joint is remarkably good, indeed much better than x-ray appearances would suggest. Bibergeil believes the which takes place at the time of reduction, and urges that trauma be avoided wherever possible on account of these late important changes.

CLUB FOOT.

Eikenbary[36] calls attention to the imperfect nature of the term "equino varus" as descriptive of club foot. His point is well made when he says that adduction of the foot at the midtarsal joint is a most important and least often corrected part of the deformity. He leaves the equinus for last correction, and statistically proves the practical safety of tenotomy as far as danger of non-union is concerned.

(Ed. Note.—We admit that non-union is a practically negligible danger under proper technic, but too free and careless section often results in the formation of much scar tissue and a loss of contour and a clear outline of the tendo Achilles. Possible subsequent tenotomies or tendon lengthening are made much more difficult, and we have lately employed in all marked cases either a careful open tendon lengthening with closure of the sheath, or the subcutaneous zigzag method of Bayer, believing these to be better procedures in cases which have extreme degrees of equinus persisting after the varus and the adduction of the fore part of the foot has been corrected.

Hoke[37] in nearly all cases does an osteotomy of the metatarsals at their bases or midtarsal ends. There is no disturbance of growth, and after thorough manipulation of the tarsus, this procedure often obviates the necessity for the removal of large bone wedges from the tarsus. The removal of these wedges may interfere seriously with the future growth of the foot.

RICKETS, OSTEOMALACIA, COXA VARA, ETC.

Discussion as to the etiology of rickets still continues, and while those who hold it to be some disturbance of metabolism connected with nutrition seem to be in the majority, the infection theory is apparently winning strong partisans. Thus Ribbert[38] maintains that disturbances of lime salt metabolism play no rôle in the etiology, despite the clinical experiences of the association of faulty nutrition and metabolic disturbances. Experimentally he believes rickets may be produced by bacterial infection and by excision of the thymus gland. The findings of necroses of the cartilagenous cells in the region of endochondral ossification suggest an infection also.

Kassowitz[39] considers that the increased formation of blood vessels and medullary spaces is also an evidence of some infection, and mentions the fact of its frequent appearance in children of apparent normal digestion and sometimes even in infants well fed by the breast.

Dibbelt,[40] on the other hand, is unwilling to admit the infectious theory of Ribbert and Kassowitz, maintaining that the changes in the secretion and excretion of lime salts which can be observed in the acute stage, can only be explained on the theory of a disturbance in lime salt metabolism.

Osteomalacia. Stocker[41] reviews his experimental research based on the assumption that osteomalacia is the result of excessive or perverted function of the ovaries and testicles. He has implanted into the preperitoneal tissue of rabbits, calves, and dogs, ovaries and testicles of other animals of the same species, thus inducing an extra supply of the internal secretion. In rabbits the results were negative, but he points out that osteomalacia has never been recorded in rabbits. In calves and dogs signs of softening of the bones were seen within five months. There seemed to be no doubt that the implants continued to secrete and that the excess of hormones from the sexual glands influenced the metabolism. The softening resembled in all respects that seen in rickets and osteomalacia. In these diseases we have no means of checking the hypersecretion of these glands except by their removal, but Stocker suggests that these deleterious oversecretions may be checked by supplying a larger amount of the antagonistic hormones to restore the balance between the internal secretions. This has been realized by Bossi[42] with epinephrin in osteomalacia. Bab[43] has reported great success with hypophysis extract, and Stocker himself has obtained notable improvement with thyroid treatment.

At the German Orthopedic Congress Schulz, in discussing the causes of coxa vara of adolescents expressed the belief that it was due to a hypoplasia of the genital glands and a consequent disturbance of the secretion, an opinion concurred in by Foersth.

Albrecht, in discussing a paper of Fritz Wassermann, outlined the known effect of the internal secretions on the growth of bone as follows: Hyperplasia of the hypophysis causes excessive growth. Partial excision of its ante-

rior lobe causes marked disturbance of growth. Castration in early childhood causes persistence of the epiphyseal lines. Excision of the thyroid and of the suprarenals disturbs the longitudinal growth of the bones.

SCOLIOSIS.

Doerr,[44] making exact measurements of 220 cases of scoliosis in Prof. Lange's clinic in Munich, found that in about 7% of the cases there existed a static defect. His statistics are similar to those of Schultbess, who considered that about 5% could be attributed to some static error. Doerr calls attention to the importance of examination of the whole static unit, *i.e.* leg and pelvis, especially in those cases with a lumbar curve.

Nageotte and Wilbouchewitch,[45] as a result of radiographic study, believe that a scoliosis arising from malformation of the fifth lumbar vertebra can be corrected by raising the sole of the appropriate foot. The early recognition of the abnormality is, of course, important. They say that the young and malleable vertebra yields to the action of the weight of the body when the foot is thus raised and that gradually the symmetry of the fifth vertebra is restored, or a compensating malformation in the fourth is developed.

(Ed. Note.—While we do not wish to belittle the importance of static error as a cause of scoliosis, it is surely interesting to note in how small a percentage of scoliosis there is any static error to be detected by exact measurement, as the statistics of Doerr and Schulthess show. It is conversely true that frequently extreme degrees of faulty statics exist for many years without causing any structural change in the vertebral column. Cases of early hip disease and short legs from various lesions, show as a class surprisingly little tendency to the development of a scoliosis. It would seem as if there must be in many of the types some cause other than faulty statics or numerical variation or vertebral abnormality. Nathan[46] offered the suggestion several years ago that we might well suppose some underlying general osseus change of structure which produced a marked predisposition to change of shape when even slight and under other conditions unimportant static defects existed. We are inclined to believe that only on this somewhat vague supposition can many of the complex phenomena of scoliosis be explained.)

Spitzy[47] considers the utilization of the forces of respiration, advocated in America by Hoke and Andrews[48] in 1907, to be a most important factor in the treatment of scoliosis, and reports 14 cases in which he has used the method of Abbott with great success.

Lovett,[49] in a review of the treatment of lateral curvature of the spine read at the Seventeenth International Medical Congress, said that in his opinion the method of Abbott "offered on the whole distinct anatomical advantages and the greatest ease of correction, but the method must be regarded as being to a certain extent still sub judice."

Forbes[50] in Montreal and Adams[51] in Boston report satisfactory results by the use of Forbes' method of rotation in a flexed position.

MUSCLES AND TENDONS.

Coley,[52] in an article entitled "Myositis Ossificans Traumatica," calls attention to the importance of differentiating between this type of bony growth and sarcoma, especially of the periosteal type. From periostitis and osteomyelitis it may usually be distinguished by the absence of fever, local tenderness, and night pain, but with the x-ray alone the difficulty of differentiating a myositis ossificans traumatica from a sarcoma would be great. In Coley's cases the x-rays were repeatedly diagnosed as the more serious condition. The sharp outline dividing the tumor from the bone is an important characteristic, and this is only seen in the earlier cases of sarcoma, and then somewhat indistinctly. The history of definite trauma is almost always to be obtained in the cases of myositis ossificans. The growth is uniformly hard on palpation, while in sarcoma it is softer or has irregular consistency with softer areas. Moderate pain and loss of function are more often noted in this condition than in sarcoma. Microscopic examination should be made whenever possible and at times is the only sure method of differential diagnosis.

Ryan[53] reports 4 cases of what he considers muscle degeneration and osteoma developing either after trauma or as the result of an infection. Three of his cases may possibly represent injuries to the periosteum and subsequent bony proliferation. The fourth suggests the myositis ossificans traumatica such as Coley has described.

Tendon Regeneration. Henderson's[54] experiments with tendon regeneration on five dogs seem to bear out the conclusions of Sever[55] and others, that the sheath is of great importance to perfect tendon regeneration. The experiment in which one and one-half inches of the tendo Achilles was resected, but the sheath preserved, showed as perfect and as quick regeneration as the last three cases in which the same procedure was followed but the defect bridged by two linen threads. In fact, Henderson thought that the threads seemed to retard rather than hasten union.

BONE TUMORS.

Bone Cysts. Canaguier[56] reviews the literature of bone cysts and concludes from a histological point of view that the great difference in the tissue findings in different cases suggests a different origin in many cases. Along with von Haberer, he considers that all simple bone cysts should not be grouped in one single class, and he believes that they originate from one of

three causes: 1. Cysts forming in the centre of a solid bone tumor (most frequently sarcoma). 2. Cysts due to osteitis fibrosa. 3. Cysts resulting from chronic inflammatory processes. 4. Cysts originating as bony hematoma following trauma.

Lejas[57] has encountered five cases of pathologic bone growth in front of the hip joint. They deceptively simulated sarcomas, but examination showed nothing malignant about the growths. They all had a history of trauma from two to four years previously. After a period of insidious development the tumor suddenly increased in size and caused pain in the use of the limb. In all his cases the growth was removed by chisel and mallet and as completely as possible.

Brackett[58] has cut down upon one such case which had been mistaken for tuberculosis of the hip by able orthopedic surgeons. The removal of the growth, in this case small and only suggested in the radiograph, has resulted in the relief of pain and muscle spasm and the return of function.

Kolb[59] believes that all sarcoma-like tumors of the bones, especially those of the skull, should suggest the possibility of metastases of thyroid tissue. He reports the case of a woman of 75 years who had had a goiter removed seven years previously. A tumor of three months duration was removed from the skull and showed the structure of the thyroid gland. Several smaller tumors were found in the lungs. Of 59 cases collected by Regensburger, 25 were in the skull. The tumor grows very slowly, 13 of the patients living 1-2 years; 7 lived 2-4 years; 7 lived from 5-17 years. The thyroid is not always, but is generally enlarged. The spine, next to the skull, and the long bones, next to the spine, are the favorite seats of these tumors.

Ward[60] reports three cases of bone metastases in cancer in which the blood examination showed an increase of the irregular forms of red blood corpuscles, and in a case of cancer of the stomach reported by Harrington and Kennedy[16] in which there were bone metastases in the sternum, rib, and femur, the blood resembled that of a pernicious anemia. They believe that in any case of grave anaemia in which pains in the bones occur the suspicion of metastases should always be aroused.

FRACTURES.

Grässner[62] calls attention to the frequently unrecognized fractures of the centres of ossification. He believes they are by no means as rare as supposed, and reports cases which he has seen occurring in the metatarsus, phalanges, external and internal malleoli, the lower epiphysis of the femur, humerus and radius, as well as the head of the humerus. The cause has always been direct trauma. The importance of diagnosis by means of the Roentgen ray and the abstinence from weight bearing is evident. The end results when proper precautions are taken are excellent.

Wallace[63], in describing fracture of the wrist due to automobile cranking, points out that besides the typical chauffeur's fracture of a direct transverse break of the lower end of the radius, one meets fractures of the scaphoid generally through the middle or inner half and frequently associated with this a dislocation of the semilunar. He states that these injuries may be brought about in one of three ways: 1, by direct violence; 2. by violence plus abduction; 3. by compression between the crank and the radius. Most of the carpal injuries may be replaced but failing of this, the fragment of the scaphoid of the displaced semilunar should be removed.

Turner Thomas[64] has applied a new method of treatment to old unreduced dislocations of the shoulder. This method is a modification of the method of Allis, and consists of traction on the humerus at right angles to the body, fixation of the scapula, and downward pull on the head of the bone. He places one foot on the scapula and the top of the shoulder and the other on the side of the thorax below the axilla. The surgeon pulls upon the adducted arm flexed at the elbow while an assistant pulls downward on the head, manipulating it into place. The advantages of his method over others are (1) that the danger of injury to the vessels and nerves of the axilla by the heel is avoided; (2) the head is brought back into place by a reversion of the course it has followed in the dislocation; (3) there is less danger of fracture of the humerus than in the reduction by external rotation. By this abduction method the force driving the head into the socket is directly applied and there is no long leverage. The Bigelow and the Kocher methods are not available in cases complicated by fracture, while in these cases this traction abduction method may safely be adopted. Thomas, after a study of the cadaver, is firmly convinced that the head cannot escape from the socket through the linear tear of the capsule that Kocher describes. A further tear at right angles he believes necessary. The torn capsule is closely bound about the neck and the chief obstacle to reduction is the cicatricial tissue formed along the torn edges of the capsule and the contractions of the capsule, especially of the posterior portion. He agrees with Lund[65] that after six weeks, changes have taken place that render manipulative reduction improbable.

Gibson[66], reporting a successful open reduction by a posterior incision of an old dislocated hip in a patient 49 years old, is convinced that here too, the likelihood of safe reduction in adults after eight weeks is little. In his case neither reduction under ether nor traction in bed with weight and pulley were successful, and at operation the acetabulum was found obliterated by the torn capsule.

An unusual dislocation of the left os innominatum has been reported by Fiaschi[67]. A ten year old boy was struck on the crest of the left ilium a glancing blow by a falling iron fence. There was a protrusion over the left

sacro iliac joint. The x-ray showed the whole left side of the pelvis higher than the right, the pubic bone being elevated on that side one inch. There had been apparently a nearly complete dislocation of the left os innominatum by the blow and later an upward displacement owing to the pull of the adbominal and back muscles. Under ether this displacement was at least partially reduced and a fairly good functional recovery was made.

(Ed. Note. We have observed one case and seen Roentgen plates of two others in which a complete or partial dislocation of the ilium at the sacro iliac joint had taken place, the displacement being upward as in this case. In these cases direct violence was the cause and there were complicating pelvic fractures as well.)

Schultze[68] believes that in fractures of the patella it is most important to reconstruct the apparatus of extension. He is extremely careful by means of three double hooks to obtain by suture a most complete coaptation of the edges of the torn capsule. He gets his patients out of bed in 12 days and begins light medico mechanical treatment. Sutures of the bony fragments are usually rendered unnecessary when the capsule is accurately repaired and sutures of the bone fragments alone he considers insufficient for the return of perfect function.

Foraze and Salle[69] have studied fractures of the astragalus and analyzed the commonest forms of break. They advise fixation in plaster for a month and freedom from weight bearing for two months. Where displacement is slight, prognosis is good, but they call attention to the frequency with which obstinate arthritic conditions persist after union is firm. To overcome these common and incapacitating symptoms Stockum[70] has been performing an arthrodesis of the calcaneo astragaloid joint in old painful fractures of the astragalus or os calcis. It is at this joint that most of the painful motion occurs and destroying all this motion has been successful in his hands in relieving symptoms.

MISCELLANEOUS.

Isamoylenko[71] has made a histological investigation of the function of the endosteum in 22 human cases, varying in age from embryonic life to over 80 years. He concludes that the endosteum is a connective tissue, having the same functions as the periosteum, namely bone formation and bone absorption. The endosteum is entirely different from the bone marrow, forming a connective tissue framework for this structure. The marrow does not share in bone regeneration and cannot exist independently from the endosteum. On the other hand, the endosteum can live without any connection with the marrow.

Smith[72] has studied skiagraphs of the hands and forearms of 914 naval students in order to determine whether the degree of development of the fourteen epiphyses which these plates show will give any index in these sub adult cases of normality or precociousness or delayed development of the individuals. He concludes that while in children this method of Roteh[73] may be of value, it is in the cases studied unsatisfactory.

Pieri[74] has had successful results in spina bifida by transplanting grafts of fascia from the thigh to close the opening in the canal. The graft is placed between the subcutaneous cellular tissue and the cavity of the spine, and the skin is brought over this.

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Reports of Societies.

TRANSACTIONS OF THE AMERICAN SOCIETY FOR THE PROMOTION OF CLINICAL RESEARCH, WASHINGTON, D. C.

MAY 5, 1913.

MORNING SESSION. CALLED TO ORDER BY THE PRESIDENT, DR. W. S. THAYER, AT 10.00 A.M.

DR. THAYER said: The functions of this organization are set forth completely in the title. The idea underlying the formation of the Society was to gather together medical men, and particularly young men, in order to stimulate and encourage by our mutual efforts the undertaking and putting forth of original research work. It is thus a society of clinicians who desire to do more than merely practice medicine.

With these objects of the Society in view, the council has acted in making recommendations for election to membership.

We will proceed with the scientific program; but before calling for the papers, I beg leave to exhibit an unusual polygraphic tracing for your discussion, and to make a clinical observation.

The tracing is from a patient, whose history is as follows: For six months he has had attacks of the Adams-Stokes' syndrome. When seen by me he had been in bed for two weeks recovering from a very severe paroxysm, during which the pulse had been as low as 30. When I saw him the pulse was 36, the heart somewhat enlarged, the sounds clear; but between the beats I thought I could hear an additional slight sound.

Analysis of the tracing shows that between each ventricular beat, there is a characteristic auricular impulse, which explained the sound heard between heart beats.

It will be noticed that the C wave has a notch on the katacrotic limb, which evidently is another auricular wave; it would seem, therefore, that in this case we are dealing with 2: 1 rhythm heart block, with a very unusually long interval between the auricular and the ventricular contractions.

The clinical observation I wish to make is in connection with the case of a man seen about two years ago. This man had had polyarthritis, followed by dyspnea on exertion and cyanosis. He had been ill about two months when I saw him; he was cyanotic and the veins of the neck were much distended. It was evident that there was some obstruction of the superior vena cava. Physical examination showed that there was present a large pericardial effusion.

Upon lying down the whole picture changed; the cyanosis disappeared and the distended veins subsided. In the course of a few months, the pericardial effusion cleared up and the symptoms were all much better. Later the patient died, but no autopsy was obtained.

This man had been on his feet and had been going about with an old pericardial effusion. It seems possible that the heavy pericardial sack, in the erect posture, by tugging at the base of the heart may have caused a certain amount of stenosis of the superior cava. There is no other such case recorded in the literature so far as I have searched.

Is orthopnea a symptom of pericardial effusion? I have been struck by its absence, although the dyspnea may be great. In pleural effusions orthopnea is the rule. May not the explanation just advanced correctly explain this difference?

ETIOLOGY OF ACUTE MUSCULAR AND ARTICULAR RHEUMATISM.

DR. E. C. ROSENOW, Chicago.

By planting the joint fluid and other material in acites-dextrose agar it has been possible to isolate organisms of the type described by Poynton and Payne from twelve out of fourteen cases of typical acute articular rheumatism. The organisms are never numerous in the free joint cavity but are present in larger numbers in the lesions of the para-articular structures. In order to obtain positive results it is quite necessary to make the cultures within forty-eight hours of onset of the pain in a given joint or soon after exacerbation. This is true to even a greater degree in case of blood cultures. In two out of four cases the organism was isolated from the blood at the height of the attack.

Culturally and morphologically the organisms resemble more closely streptococcus viridans than hemolytic streptococcus. Nearly all strains fermented mannite and when first isolated produced a very high degree of acidity in dextrose broth and grew better at low temperature than the other members of the streptococcus group.

Their virulence to warm-blooded animals is greater than streptococcus viridans but less than the common hemolytic streptococcus and of course pneumococcus. The virulence to cold-blooded animals on the other hand (frogs at 22° C.) is greater than hemolytic streptococci and highly virulent pneumococci. But when frogs are placed at 37° C. the relative virulence of these strains is again the same as to warm-blooded animals. These facts may explain why exposure to cold aggravates so strikingly the symptoms in rheumatism. While the cultural and other features of these organisms resemble closely streptococcus viridans and hemolytic streptococcus they behave quite differently when injected intravenously in animals. Multiple non-suppurative arthritis and endocarditis of the rheumatic type, pericarditis and myocarditis have been produced repeatedly in the same animal. The lesions about the joints occur in relatively avascular regions. The number of organisms here just as in the human is greater than in the joint cavity. The endocarditis due to these organisms, just as I have shown to be the case in streptococcus viridans endocarditis, has been proven to be embolic in origin. But the vegetations remain small and often do not break through the endocardium. This is in marked contrast to the type of lesion produced by streptococcus viridans where the vegetations become large and ulcerated. This difference is shown beautifully by the specimens.

By modifications of these organisms and by two strains obtained from cases in which muscular involvement was present it has been possible to produce in rabbits, dogs and in one monkey extensive non-suppurative myositis. The distribution of these lesions is quite like that in human muscular rheumatism. The lesions are most numerous in the flat

muscles about the neck, shoulders and spine, the intercostal and belly muscles; less often the diaphragm and the more tendinous portions of the muscles of the extremities. When the affinity for the skeletal muscles is great the myocardium shows especially marked degeneration and there is now usually also nephritis but the affinity for endocardium and joints is distinctly less than before.

DISCUSSION.

DR. R. I. COLE, New York: Is there any specific biological test for infection with this organism?

DR. R. PEMBERTON, Philadelphia: Has Dr. Rosenow extended his observations so as to study chronic effusions in joints? I have in mind cases of the rheumatoid arthritis group.

DR. W. T. LONGCOPE, New York: What happens when the virulence of this particular strain of cocci is increased? Do you ever then find that the more acute vegetative changes occur in the heart?

DR. E. C. ROSENOW, Chicago: I have found no special biologic test for this organism. The property of producing the typical rheumatic lesions is present for only a short time after cultivation of micrococcus rheumaticus. To test this out, a culture was taken from the tonsil early in an attack of acute rheumatism: the organism was identical with the organism obtained from rheumatic joints, and produced the same lesions on inoculation. Later cultures, taken after the lapse of four days and eight days respectively, no longer produced joint lesions, but did cause endocarditis. After a month in a hypotonic solution (distilled water), the organism grew differently and produced in animals myositis and myocarditis. Whenever the tendency is to invade muscles, the organism also tends to cause myocardial degeneration.

As to the chronic lesions of joints, as in rheumatoid arthritis, I feel sure that this organism is not to be found in such joints; one is more apt to find the streptococcus viridans.

When the virulence of the micrococcus is enhanced, joints are no longer involved, but endocardial change is the rule.

I have been able to convert the micrococcus rheumaticus into streptococcus pyogenes, into pneumococcus, and into other strains.

A CONSIDERATION OF SOME OF THE PROBLEMS RELATING TO THE ORIGIN AND TRANSMISSION OF THE INFECTION IN EPIDEMIC STREPTOCOCCUS SORE THROAT.

DR. J. A. CAPPS, Chicago.

In some epidemics of septic sore throat the infection can be easily traced to one milk supply; in others the clinical data require painstaking study. An epidemic in Batavia was graphically described to illustrate how several dairies can share in the spread of infection by means of interchanging bottles with the primary offender.

Another small epidemic was unearthed in Oak Park by tracing the milk from a herd of diseased cows to the consumers. Small outbreaks due to milk are probably very common in the smaller cities and should be recognized.

The evidence obtained on the farms points strongly to streptococcus mastitis as the principal source of contamination.

EXPERIMENTAL BOVINE MASTITIS PRODUCED BY HUMAN THROAT STREPTOCOCCI.

DR. DAVID J. DAVIS, Chicago.

The source of the Chicago milk epidemic of 1911-12 was traced by Capps and Miller (*Journal American Medical Association*, 1912, v. 58, p. 1848) to certain farms in the region of Batavia, Ill., where the milk supply of the suspicious dairy was obtained. On a number of farms sore throat in the milkers and mastitis in the cows were associated. In some instances the mastitis preceded the sore throats in the milkers and in other instances the sore throat preceded the mastitis in the cows. It was necessary, therefore, to consider the possibility that the mastitis was caused through the infection of the teats and udders of the cows by the milkers. This consideration also involved the question of the susceptibility of the cow to human streptococci. In attempting to throw some light on these problems the following experiments were made.

From the tonsils of a patient suffering with a typical and moderately severe acute tonsillitis an ordinary hemolytic streptococcus was obtained in pure culture. This organism was first smeared on the surface and over the ends of the teats of a healthy cow. Also some of the exudate direct from the throat was applied in a similar manner. The results were negative. Two other strains of human streptococci were applied in the same way without result.

Next a slight abrasion of the skin was made near the meatus at the end of one of the teats and the throat streptococcus was applied as before. Local infection resulted in twenty-four hours. After several days the infection extended into the udder as manifested by the presence of streptococci and other germs and an increase of pus cells in the milk from this quarter. There was no caking of the udder and little or no swelling of the quarter. The streptococci continued to be discharged in the milk for over two weeks.

Into another quarter a culture of the throat streptococcus in milk was injected through a small catheter inserted about 8 cm. into the udder. On the following day the milk was stringy and contained enormous numbers of pus cells and streptococci in pure culture. No caking of the udder resulted but moderate swelling with some tenderness was present for a few days. The inflammation gradually subsided but streptococci continued to be discharged in the milk for about four weeks.

During this time no alteration of the properties or the pathogenicity of the streptococcus was noted.

Feeding young rabbits and a monkey with the infected milk caused no symptoms in the animals.

The following conclusions may be drawn:

1. Hemolytic streptococci from the human throat may cause mastitis in cows.

2. The streptococci and the increase in pus cells may persist in the milk for several weeks, a point which may be brought into relation with the duration of milk epidemics of septic sore throat.

3. An abrasion of the teat may be the atrium of infection. It would appear to be possible, therefore, for mastitis in cows to be produced by an infection from the milker whose hands were contaminated, perhaps, from a sore throat.

4. Caked udder or ropy milk may or may not be present. Hence, an ordinary physical examina-

tion of a cow might not be sufficient to detect a streptococcus mastitis. Bacteriological examination of the milk carefully obtained from each cow or better from each quarter of the udder might be necessary to detect the source of infection.

DISCUSSION.

DR. JOS. L. MILLER, Chicago: Have any of the members seen epidemics of this sore throat during the past winter? I have seen two cases in people who had recently come from Florida.

DR. HENRY A. CHRISTIAN, Boston: May we infer from these investigations that we are safer if we get our milk in cans along with the other bacteria?

DR. W. S. THAYER, Baltimore: In Baltimore last winter a brief epidemic occurred during a time when the pasteurizing plant was temporarily out of order. The brevity of the epidemic may be understood when I say that I went out of the city for two-weeks' stay; there was then an epidemic, and when I returned the epidemic was over.

Discussion closed.

DR. J. A. CAPPS, Chicago: With regard to the multiplication of bacteria, Theobald Smith says that improper pasteurization may act only as incubation, and thus it may be more a menace than a protection. Dr. Christian's question, I would not attempt an answer; the only inference I would draw would be that the consumers served by the dairy with bad milk profited by the fact that they happened to have a bottle service. It is only safe to conclude that the distribution of milk in bottles, pasteurized in the bottles by the holding process, is the best method of protection thus far devised.

DR. D. J. DAVIS, Chicago: I do not think the inference embodied in Dr. Christian's question necessarily follows from the results of our investigations. It is a fact, however, that streptococci in milk do not multiply as rapidly as do other bacteria, and that they will in the presence of saprophytic organisms eventually disappear.

ABSTRACT.

THE METABOLISM AFTER MEAT-FEEDING OF DOGS IN WHICH PANCREATIC EXTERNAL SECRETION WAS ABSENT.

DR. FRANCIS F. BENEDICT AND DR. JOSEPH H. PRATT, Boston.

Ingestion of various kinds of foodstuffs produces an increase in the total metabolism of both animal and man. Zuntz assumes that this increase is mainly due to the mechanical work of digestion. Rubner, on the other hand, holds that it results from the specific dynamic action of the absorbed foodstuffs. The present study deals with the metabolic changes following the ingestion of meat upon three dogs without external pancreatic secretion in which the absorption of nitrogen and fat was greatly diminished. In these animals the work of the intestines following the ingestion of food was greater than normal, hence, if Zuntz's theory was correct greater increase in the metabolism than that present in a normal dog would be expected. As the absorption of nitrogenous material from the intestine was greatly decreased, there should be according to Rubner's view, less increase of metabolism than seen in the healthy animal.

The carbon dioxide produced was determined by means of a modified form of the Benedict and Homans' respiration apparatus. Kymographic records of muscular activity were kept and all experiments were rejected except those in which the animal was very quiet. Control experiments were made with a normal dog. All four animals were of nearly the same size and weight.

The increment in the carbon dioxide production was found to be larger in the normal dog than in the three dogs with pancreatic achylia. This was particularly true when 750 grams of meat were fed, but also apparent when only 500 grams of meat were given.

The results of these experiments show that there is no large energy transformation incidental to segmentation, peristalsis, glandular activity, and the movement of the unabsorbed food through the intestinal tract. The attempt to explain the increased metabolism following the ingestion of food by the theory that the increase is a consequence of such movements is, therefore, not justifiable.

DISCUSSION.

DR. FRITZ B. TALBOT, Boston: There is one important source of error in such work. Benedict and I in estimating the metabolism of normal babies found that the results depend to a great degree on the amount of muscular activity of the individuals under investigation, and we met with great difficulty in attempting to compare this factor.

DR. S. J. MELTZER, New York: May not another source of error arise from the fact that when the pancreatic external secretion is eliminated some of the glandular activity is also eliminated? Some of these glands need to be activated by the influence of the pancreatic juice.

Discussion closed.

DR. J. H. PRATT, Boston: I recognize the importance of Dr. Talbot's remarks. Benedict first called attention to the necessity of controlling muscular activity, and no practical suggestion has been of greater value than this in conducting the experiments at the Carnegie Institute.

I cannot answer the question proposed by Dr. Meltzer, because the same important and unsolved problem is involved as is encountered in all such work. The same criticism has been made before by Dr. Meltzer, especially in the case of one of my experimental dogs with imperfect gastric function; but in the experiments here reported the stomach secretions seemed normal so far as my examinations could determine.

(*To be continued.*)

Book Reviews.

Annual Registration Report of Michigan. By FREDERICK C. MARTINDALE. Lansing: State Printers. 1913.

This belated forty-fifth annual report of the secretary of state on the registration of births and deaths, marriages and divorces in Michigan for the year 1911, presents the vital statistics of the state for that year. The greater part of the volume consists of the primary tables in which these data are compiled; the remainder of secondary tables and text, in which they are analyzed. The volume is of value to statisticians and students of public health.

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REPORT OF THE COMMITTEE OF THE SOCIETY OF MEDICAL JURISPRUDENCE ON THE LAW OF INSANITY.

IN January, 1912, a committee composed of prominent physicians and members of the bar was appointed in the New York Society of Medical Jurisprudence to consider the desirability of changing the legal measure of responsibility of those mentally diseased or defective, so as to accord more thoroughly with the views of students of the causes of mental defects; and the New York State Bar Association, at its annual meeting in the same month, enlarged the powers of its committee on the treatment of the criminal insane in order to coöperate with this and other similar committees for the purpose named. The committee conferred with Prof. E. R. Keedy of the Northwestern University, Chicago, chairman of Committee B of the American Institute of Criminology and Criminal Law, and learned that his committee had pursued to a very considerable extent the same inquiry it was commissioned to make, limited, however, to criminal responsibility. This Committee B had made, in November, 1911, a preliminary report which contains a valuable bibliography on criminal responsibility of the insane, expert testimony, and miscellaneous matters connected with mental responsibility. The committee then announced its intention to make a thorough investigation into the subject from the standpoint of criminal law; it also suggested, for discussion, a proposed statute changing the present measure of responsibility for crime of those who are mentally deficient.

At a recent meeting of the society the committee, the medical members of which were the president of the society, Dr. Wilcox and Dr. F. W. Robertson, presented its report. This states that there is apparently a well-defined opposition in the entire medical profession to the present legal definition of that kind and degree of insanity which should be a defense for crime. This definition, which was first formulated in England in the McNaghten case, in 1843, and is now crystallized in the New York penal law, declares that: "An act done by a person who is an idiot, imbecile, lunatic or insane is not a crime. A person cannot be tried, sentenced to any punishment, or punished for a crime while he is in a state of idiocy, imbecility, lunacy or insanity, so as to be incapable of understanding the proceeding or making his defense. A person is not excused from criminal liability as an idiot, imbecile, lunatic, or insane person, except upon proof that, at the time of committing the alleged criminal act, he was laboring under such a defect of reason as (1) not to know the nature and quality of the act he was doing, or (2) not to know that the act was wrong." Not only is this definition disapproved as wholly unsatisfactory by most of those professionally engaged in the study and treatment of the insane, but it has now been disproved and rejected as an inadequate definition in some of the courts of this country, while even in England, where the definition was invented by a body of judges presumably unacquainted with the nature of mental disorders, there is a tendency to disregard it in the trial courts. The committee is of the opinion that this definition should be discarded, and that no legal definition is necessary in the present state of our knowledge of mental disorders. The present legal standard holds persons responsible who, in the opinion of the committee, are not capable of avoiding the act committed by them, although they may appreciate its moral and legal qualities. The acts of an individual are largely the results of his mental reactions, and these may be abnormal to such an extent as to make him morally irresponsible for his conduct, in instances where his irresponsibility in fact would be no defense for his acts under the present law. The guide of responsibility, it believes, should be the judgment of the jury, as instructed by the medical witnesses in the case. It is not likely that a jury would convict a person who could

escape under the present legal definition, while a jury might properly acquit, on the ground of insanity, a person whom they should regard as irresponsible for his acts, though not measuring up to the legal definition. The committee, therefore, recommends that the latter portion of Section 1120 of the New York Penal Law should be repealed. This would leave the provisions of the law in respect to mental incapacity as follows:—

"An act done by a person who is an idiot, imbecile, lunatic or insane is not a crime. A person cannot be tried, sentenced to any punishment, or punished for a crime while he is in a state of idiocy, imbecility, lunacy or insanity, so as to be incapable of understanding the proceeding or making his defense"; leaving the jury, under the instructions of the judge and from the evidence in the particular case, to be the judge of what constitutes an idiot, imbecile, lunatic or insane person.

A dissenting minority report was presented by one of the three legal members of the committee, who objected to the repeal recommended, on the ground that it would result in more uncertainty than ever in the prosecution or defense of such alleged criminals, and contended that if the repeal were to be made, some other legal or medical definition ought to be suggested as a guide for jurors and courts in their decisions; for otherwise jurors would be led to speculate too much, and would allow many to go free who are now held accountable. The sentiment expressed at the meeting was entirely in favor of the majority report, which was adopted. In accordance with one of its recommendations, a new committee was instituted to take such steps as may be considered proper to give publicity to the recommendations of the society and secure the ultimate amendment of the penal law accordingly, and the whole matter is to be made the special order of the March meeting of the society.

THE STATUS OF RADIUM AND RADIO-THERAPY.

THE subjects of radium and radiotherapy are at present occupying positions of considerable prominence in both scientific and popular medical literature. The physical properties of radium are so remarkable and almost mysterious as to attract widespread interest and curiosity; and the claims made for the possible therapeutic values of radio-active substances are so striking as to demand careful investigation. Unfortunately, like all new modes of treatment, radiotherapy has already been sensationally over-exploited. It is desirable to assess the claims of its merits and determine, if possible, its actual present status in the field of medicine.

In another column of this issue of the JOURNAL we begin the publication of a continued article by Dr. Delano, of this city, aiming to review the history and literature of radium and to state impartially the case for its value as a therapeutic agent.

From its very nature, the subject of radiotherapy lends itself easily to quackery and charlatanism, and the public needs warning against unreliable users of radium and against undue expectations of its efficacy.

THE executive committee of the American Society for the Control of Cancer has recently prepared for general distribution the following circular, aiming thereby wisely to warn the public against exaggerated claims for the value of the radium treatment of malignant disease, and to prevent the consequent disappointment and suffering in the event of its proving even less salutary than may reasonably be hoped.

"The American Society for the Control of Cancer fears that exaggerated ideas of the power of radium in the treatment of cancer may result from the recent publicity given to this agent in the daily press. It appears highly important at the present time that the limitations of radium in the control of cancer should be emphasized as well as its favorable effects in certain cases. Otherwise the familiar story of new hopes, destined only to disappointment, will again be recorded at the expense of many unfortunate sufferers.

"The curative effects of radium are practically limited today to superficial cancers of the skin, to superficial growths of mucous membrane which are not true cancers, and to some deeper lying tumors of bone, etc., which are not very malignant. The problem of the constitutional treatment of advanced, inoperable cancer is still untouched by any method yet devised or likely to be devised for administering radium. Even among the so-called radium cures, it still remains to be determined in many cases whether the favorable result is permanent or is to be followed sooner or later by the usual recurrence. The most competent surgeons do not dare to pronounce a case cured until five years have elapsed after an apparently succesful operation. The same test must be applied before we can finally determine the real value of radium.

"It should be emphasized especially that radium cannot at present exert any permanent benefit on generalized cancer, and since cancer,

in a very large proportion of cases, is widely disseminated in the body early in the course of the disease, this entire group of cases can expect no important relief from radium. Another large group of cancers is comparatively inaccessible to the application of radium, so that the ultimate course of the disease is not affected, although certain portions of the tumor may be reduced in size. Again, many forms of cancer, although localized and accessible to radium, grow very rapidly and resist the curative action of this agent, so that no real benefit can be expected from its use.

"The best results of radium therapy can be secured only when comparatively large amounts are available for use and the present limited world's supply of this metal places it out of reach of the great majority of patients. It is to be feared that much harm may result from undue reliance upon small quantities of low grade radium when other methods of treatment would be more effective.

"Evidence of the possible extent of popular misconception on this subject is found in a pathetic letter recently received at the New York Health Department from a sufferer in California, who had somehow obtained the impression that the United States Government was about to purchase large quantities of radium from abroad. Assuming that the 'New York City physician' would have a plentiful supply, the writer asked that some be sent to him C. O. D. without delaying to advise him as to the cost.

"Under the term 'cancer' are commonly grouped several diseases which differ widely in nature, causation, and courses, and in their response to radium. It requires both skill and experience to determine just what type of cancer one has to deal with as well as the advisability of using radium. Hence, it is extremely difficult to formulate an accurate statement of the true position of radium therapy, but it is quite clear that the exploitation of this remedy as a cure of cancer in general is to be deprecated."

Considerable attention has also been attracted by alleged commercial attempts to control the supply of radium, in order to maintain or even raise its already almost prohibitive price. To prevent such an occurrence in this country, a proposal has been made by Mr. Lane, United States secretary of the interior, to withdraw from entry all lands of the public domain suspected of containing deposits of carnotite or other radium-bearing ore, in order that these may be secured for the common good and not become the object of private speculation. A bill to this effect has been introduced into the national legislation by Mr. Foster, chairman of the House committee on mines and mining. At hearings held in Washington on this subject, numerous physicians have appeared in behalf of the bill. Such a measure of conservation seems certainly wise, at least until such time as the actual therapeutic value of radium shall have been more accurately appraised.

CONSTITUTIONALITY OF EUGENICS.

THE operation of the so-called "eugenic law" in Wisconsin has already involved legal complications. On Jan. 2 an applicant for a marriage license was refused because he did not have a certificate of examination. He immediately carried the matter before the local circuit court as a test case; and, on Jan. 20, Judge Eschweiler handed down a decision declaring the law unconstitutional.

"The law is praised because of its movement toward suppression of venereal diseases, but is condemned because its enforcement is practically an impossibility.

"The court held that, if the state wishes to exercise its right for preventing undesirables from marriage, it should assume the burden of weeding out the unfit, and thereby not cast upon the fit an unfair demand and thus materially impair an inalienable right.

"The prayer of the plaintiff that the law was class legislation by demanding tests from men only, is refused. The judge said that this was a legislative right. He also overruled the objection to the clause in the law which provides that all examining physicians must be 30 years old or older, because that feature of the law does not affect the rights of the petitioner."

The case has been appealed to the supreme court. Meantime the plaintiff has been granted a license without examination.

MEDICAL NOTES.

A PROLIFIC MOTHER.—Report from Briesen, West Prussia, states that Mrs. Schmidt of that city, has recently given birth to her thirtieth child. She has had several multiple pregnancies.

FOUR LIVING SURREY CENTENARIANS.—Report from London states that there are at present four living centenarians in Surrey,—three being one hundred years old, and the fourth, Mr. John Durant, of Weybridge, having been born on Feb. 2, 1810.

RATES OF EUROPEAN POPULATION INCREASE.—Statistics recently published in London show the relative rates of increase in population of the various countries of Europe in 1911. The six nations having the most rapid growth are Bulgaria, Roumania, Russia, Portugal, Servia and Bosnia. Germany stands eleventh, with an increase of 113 per 10,000 of population. In Scotland the rate was 105, in England 98, Austria 95, Belgium 85, Switzerland 84, Spain 81, Ireland 67, and France 9. The rate of increase in Bulgaria was 188.

BOSTON AND NEW ENGLAND.

TYPHOID FEVER IN BOSTON.—There is at present an epidemic of 55 cases of typhoid fever in Roxbury and Jamaica Plain. The outbreak has been traced to a milk supply infected by a carrier. This supply has now been excluded from the market, and germal antityphoid inoculation is advised for local residents.

HOSPITAL BEQUEST.—The will of the late Mary C. Eastman, of Concord, N. H., which was filed in that city on Jan. 15, contains a bequest of $10,000 to the local Margaret Pillsbury Hospital.

SHARON SANATORIUM ELECTION.—At the annual meeting of the corporation and directors of the Sharon Sanatorium, held recently in Boston, Dr. Vincent Y. Bowditch was reelected medical director, and Dr. Walter A. Griffin superintendent.

PRESCRIPTIONS BY THE BOSTON DISPENSARY.—During the year 1913 the pharmacy of the Boston Dispensary filled 76,584 prescriptions, of which 70,556 were for patients coming to the clinics, and 6028 for patients treated in their homes.

SOME BOSTON DEATH-RATES.—During the first ten months of 1913 the total death-rate of Boston was only 16.1 per 1000 inhabitants, and the death-rate of infants under one year was 112 per 1000 births. In the corresponding period, the tuberculosis death-rate was 14.27 per 10,000 inhabitants. In 1876 this rate was 36.65; in 1881, 42.39; in 1890, 33.27; in 1901, 23.67; in 1907, 18.11; and in 1912, 15.18. In 1912 the tuberculosis death-rate of London was 13.5; Chicago, 14.1; Philadelphia, 16.6; New York, 17.0; Baltimore, 23.6; Vienna, 23.7; St. Petersburg, 28.7; Paris, 33.2; and Moscow, 34.4.

SOCIETY OF EXAMINING PHYSICIANS.—At the annual meeting of the Massachusetts Society of Examining Physicians held recently in Boston, papers were read by Dr. William Duane, Dr. Francis H. Williams, Dr. Frederick J. Cotton, of Boston, and Dr. F. W. Anthony, of Haverhill, Mass. Dr. H. H. Hartung was elected president for the ensuing year, Dr. J. H. Stevens secretary, and Dr. John Phelps treasurer.

THE CHILDREN'S HOSPITAL ALUMNI CLUB.—The twelfth annual meeting of the Children's Hospital Alumni was held Thursday, Jan. 8, 1914.

After a "good-bye" visit to the old hospital on Huntington Avenue the alumni were shown the new hospital on Longwood Avenue, by Dr. Robert W. Lovett, following which all repaired to the Harvard Club, where the annual dinner was held at 7 p. m., Dr. Arthur R. Crandell, the retiring president, acting as toast master.

The guests of the club were Dr. E. H. Bradford, Dr. Aurel A. Cook of Hartford, Rev. J. H. Metcalf of Cambridge, and Dr. F. H. Shattuck. Dr. T. M. Rotch, who was to have been a guest, was absent on account of sickness. Besides speeches by the guests, a number of the alumni and the alumni chorus were heard from.

The officers elected for the ensuing year were: Dr. Walter C. Home, president; Dr. D. Crosby Greene, vice-president; Dr. Benjamin E. Wood, member of executive committee; Dr. Arthur T. Legg, secretary and treasurer.

SOCIAL SERVICE AMONG INSANE PATIENTS.—Among the recommendations in the recent report of the Massachusetts State Board of Insanity is one for the appointment of social service workers to follow up discharged cases.

"Needy families, the man or woman of which has been sent to a state hospital, will by this social worker be connected with the proper local agencies. Recommitments may be avoided by assisting in tiding a patient over a critical period.

"Patients who have left the hospital will be heard from more often and the results of hospital treatment more accurately determined. Patients, when they know that a real interest is taken in them, will return to the hospital more often if in need of advice and realizing the return of their mental illness will return for treatment.

"The study of eugenics, although associated with social service, requires workers of special training, and while in certain institutions social work and eugenics may be combined, this board

is of the opinion that they are better done by separate workers."

PETITION BY MILK AND BABY HYGIENE ASSOCIATION.—The Boston Milk and Baby Hygiene Association, in conjunction with the Massachusetts Commission for the Blind, has petitioned the General Court for an appropriation of $1000 for the printing and distribution of pamphlets in English and eight other languages to poor mothers for the purpose of instructing them in the care of their children.

WORK OF BOSTON DISTRICT NURSES.—During the year 1913 the nurses of the Boston Instructive District Nursing Association made 117,228 visits on 11,154 patients, of whom 3954 were mothers with young babies.

MASSACHUSETTS GENERAL HOSPITAL TRAINING SCHOOL.—The annual graduating exercises of the Massachusetts General Hospital Training School were held on Jan. 15 in the new Home for Nurses, which was officially opened on this occasion. Diplomas were awarded to a class of 56 pupil candidates. The principal address, made by Dr. Henry M. Hurd, secretary of The Johns Hopkins Hospital, will be published in a future issue of the JOURNAL.

NEW ENGLAND BAPTIST HOSPITAL TRAINING SCHOOL.—The annual graduating exercises of the New England Baptist Hospital Training School for Nurses were held in Boston on Jan. 27. Diplomas were awarded to a class of eight pupil candidates. The principal address was by Dr. Hugh Cabot on "The Professional Nurse in Relation to Social Problems."

WORK OF CHICKERING HOUSE.—The recently published annual report of Chickering House, Dedham, Mass., records the work of that institution for the year ended Oct. 1, 1913. During this period, 298 patients were under treatment in the home.

NEW YORK.

TWO CENTENARIANS.—Abigail McLean, who died on Jan. 12, at Battenville, near Troy, N.Y., is said to have been born in 1812.

Mrs. Nora Sullivan, who died on Jan. 17, at Potsdam, N. Y., is said to have been born in 1804 at Cahirciven, County Kerry, Ireland, and migrated to the United States in 1838. For the last eighty years of her life she was a habitual user of tobacco. Her health was always excellent.

TWO MORE CASES OF TYPHUS.—On Jan. 17 a case of typhus fever was discovered in this port aboard the Austro-American steamer *Belvedere;* and on Jan. 19 another case was found on the *Kaiser Franz Joseph,* recently arrived from Adriatic ports. The patients were removed to the Swinburne Island hospital, and the vessels and 149 steerage passengers were detained under observation at quarantine.

APPOINTMENT OF DR. BIGGS.—The appointment of Dr. H. M. Biggs as state health commissioner, recently made by Governor Glynn, has now been unanimously confirmed by the state Senate. He succeeds Dr. Eugene H. Porter, a homeopathic physician, who was appointed commissioner by Governor Higgins in 1905 and reappointed by Governor Hughes in 1909. The position had previously been tendered to Dr. Biggs by Governor Sulzer, but he declined the offer on the ground that the conditions attending it seemed to him unsatisfactory. Under the new health law enacted last year, however, the provisions of which were drawn up by a commission of which Dr. Biggs himself was chairman, the state department of health was reorganized with greatly increased powers.

A GALACTAGOGIC SERUM.—It is reported from Ithaca that in the section of the Cornell University Medical College located there a pituitary serum has been evolved which when injected into the circulation of goats has the effect of doubling the quantity of milk produced, while the cream content of the milk is increased fivefold. It is purposed to test the serum next on the cow.

THE AMERICAN SCHOOLBOY.—At a dinner of the Schoolmasters' Association, on Jan. 16, Dr. Charles L. Dana, the neurologist, discussed the question, "Is the American schoolboy overworked and likely to break down under the tasks at present imposed upon him?", and answered it most emphatically in the negative. So far from being overworked, he said, the schoolboy was not even educated, and in his thirty years' practice he could remember only one who was overworked; while in this instance the boy had weak eyes, and this was the principal cause

of his trouble. He did not know of any class of human beings who found themselves less overtaxed mentally, unless it was the college students. Assuming that boys were not either broken down or educated, but were two years behind in the educational race, and since, in the Binet-Simon scale, children, if three years behind in mental age, while in an American college this mental retard was as a rule increased, rather than lessened, it followed that our American graduate belonged to the class of feebleminded, as measured by the Binet-Simon or any other intellectual test. The European idea was that after the age of ten the child was able to do hard work, and ought to be made to do it; the American idea was that he was able to do some work, and should be persuaded to do it. Dr. Ira S. Wile, of the Board of Education, agreed with Dr. Dana that children were not mentally overworked, but expressed the opinion that the medical profession was largely responsible for the prevalent belief that there was danger of breakdown from intense work.

CHILDREN IN MUNICIPAL HOSPITALS.—On Jan. 16 the hospital investigating commission presented a report to the Board of Estimate and Apportionment in which it was recommended that some radical changes should be made, as regards children, in the municipal hospital system, especially in view of the fact that under present conditions many children become infected with diseases which they did not have when admitted to the hospital. Among the recommendations was the establishment of a more adequate children's service at Bellevue Hospital, Manhattan, and at the Kings' Hospital, Brooklyn; at both of these institutions, it was argued, advantage could be taken of the highest class of medical and surgical attendance which would be afforded by their visiting staffs.

MEDICAL ASSOCIATION OF GREATER NEW YORK.—At the annual meeting of the Medical Association of the Greater City of New York, held on Jan. 19, Dr. T. S. Southworth was elected president; Dr. Isaac Hartshorne, treasurer; and Dr. F. H. Daniels, a member of the Council. Dr. Thomas Darlington was re-elected chairman for the borough of Manhattan, and Dr. L. H. Moss chairman for the borough of Queens.

APPOINTMENT OF DR. GOLDWATER.—Dr. S. S. Goldwater, superintendent of Mount Sinai Hospital, has been appointed by Mayor Mitchel commissioner of health, to succeed Dr. Lederle. Dr. Goldwater was graduated from the University and Bellevue Hospital Medical College in 1901, and has been connected with Mount Sinai Hospital since 1903. In 1908 he was appointed medical expert in hospital construction to Bellevue and Allied Hospitals, and he is also advisory expert to the New York Hospital, the Presbyterian Hospital and other large institutions. He is now president of the American Hospital Association, one of the vice-presidents of the New York Academy of Medicine, secretary of the Associated Out-Patient Clinics of the City of New York, and an honorary member of the British Hospitals Association.

TUBERCULOSIS PREVENTORIUM.—The annual meeting of the Society of the Tuberculosis Preventorium for Children was held on Jan. 20. It was announced that $10,617 had been subscribed for the new open-air school building, and the president, Dr. H. M. Biggs, stated that nearly $2,000 was still needed for the completion of the work. The capacity of the institution has been increased from 44 to 158 beds, and as the average length of stay is three months, it is now possible to care for some 600 children during the year.

PHYSICIANS' ECONOMIC LEAGUE.—At a meeting of the Associated Physicians' Economic League held on Jan. 20, a new branch, taking in the upper west side of Manhattan was organized. The special object of the league is the correction of hospital and dispensary abuses, and the president is Dr. Thomas Dixon of Brooklyn.

INFANT WELFARE STATIONS.—The December *Monthly Bulletin* of the State Department of Health is largely devoted to infant welfare stations in the state, giving detailed accounts of the work which has thus far been accomplished outside the City of New York, and setting forth the necessity for its further development, especially in the rural districts.

RECENT DEATH-RATES.—It is announced that the annual death-rate in the state for 1913 was 14.9, as against 14.8 in 1912. With the exception of the latter year, however, this rate is the lowest ever recorded, and the average mortality was less in the cities than in the rural districts.

Current Literature

MEDICAL RECORD.

JANUARY 10, 1914.

1. WHITMAN, R. *Further Observations on the Operative Treatment of Paralytic Talipes Calcaneus and Allied Distortions.*
2. *TEN BROECK, L. L. *Extirpation of Bacillus Diphtheriae by Means of a Thallophytic Fungus, Achyla Muscaris. A Clinical and Experimental Study.*
3. SANTOS-FERNANDEZ, J. *Four Cases of Corneoscleral Dermoid Tumors.*
4. PALEFSKI, I. O. *A Modified Method of Lavage by Means of a Double-Cock Glasspiece in Conjunction with the Modified Stomach Tube, Especially Adapted for the Office and Hospital Ward.*
5. SEXSMITH, G. W., AND MARSHAP, M. I. *Case Illustrating a "Factor of Safety" in Lung Tissue, and Pulse Pressure as a Prognostic Sign.*
6. KOVACS, R. *A European Study Tour.*
7. BAKER, S. J. *The Physical Condition of Retarded School Children.*
8. MEAD, F. H. *Persistent Hiccough.*

2. Ten Broeck makes a preliminary report on a study of *achyla muscaris*, a thallophytic fungus, in the treatment of diphtheria. He finds that this organism has the power of destroying the diphtheria bacillus in culture and in the throat and that it inhibits the growth of a number of throat pathogens. It favorably influences membranous anginas of various origin, and is of prophylactic value when growing in the throat. Inoculations are usually self-limited and the procedure is harmless. Mild antiseptics, however, are advisable as after-treatment.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 10, 1914.

1. CRILE, G. W. *Anoci Association.*
2. LOWER, W. E. *Important Factors Which Influence the Immediate and the End Results of Surgical Operations.*
3. MORRIS, R. T. *Antiseptics versus Germicides.*
4. GILBRIDE, J. J. *Hunger Pain and Its Significance.*
5. HAYNES, I. S. *Intestinal Kinks; Their Diagnosis and Treatment.*
6. *FINCH, S. E. *The Effect of Intraperitoneal Injections of Ozone in Animals Following Injections with Virulent Bacteria.*
7. RIDDELL, W. R. *Welley's System of Medicine.*
8. BALLAGIS, J. *A Case of Acute Lymphocyte Leukemia.*
9. *CENTRAL COUNCIL OF PUBLIC HEALTH, NEW YORK. *A Report on the Typhoid Fever Epidemic in Manhattan*, 1913.
10. BERTRAND, D. M., AND VALADIER, A. C. *The Treatment of Pyorrhea Alveolaris.*

6. Finch reports results with intraperitoneal injections of ozone in animals following injections with virulent bacteria. He finds that this procedure following general peritoneal infection may be without harm to the animal if the concentration is not greater than 0.001% by weight and in oxygen dilution. The use of stronger concentrations produces symptoms other than those due to the physiological action of oxygen, and is dangerous to life.

9. The Public Health Council's report on the typhoid fever epidemic in New York in the autumn of 1913 is interesting reading. Among other things, it contains a striking comparison of the typhoid death rates in European and American cities. In Berlin the rate is 3.5 per 100,000 population, in Hamburg 2.5, in London 4.0, in Vienna 4.1, in Paris 6.7, while in New York and Boston it is 11.6, in Chicago 13.7, Philadelphia 17.4, and Washington 23.2. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 10, 1914.

1. KOPLIK, H. *Infant Mortality in the First Four Weeks of Life.*
2. MILLS, L. *An Epidemic of Small-Pox in Sonora, Mexico.*
3. *WOLBARST, A. L. *Universal Circumcision as a Sanitary Measure.*
4. NEWMARK, L. *Hysteric Blindness of Both Eyes in Elderly Men.*
5. *MEYER, W. *Extrathoracic and Intrathoracic Esophagoplasty in Connection with Resection of the Thoracic Portion of the Esophagus for Carcinoma.*
6. HEINECK, A. P. *A Case of Rhinophyma Successfully Treated by "Decortication."*
7. HEAZLIT, L. *Hair-Balls of the Stomach and Intestines.*
8. RICHARDS, J. H. *Chorea: With Report of Two Cases in Which Streptococcus Viridans was Found in the Blood.*
9. *WILSON, L. B. *Relation of the Pathology and the Clinical Symptoms of Simple and Exophthalmic Goitre.*
10. *SMITH, E. V., AND BRODERS, A. C. *The Iodin Content of the Thyroid Gland with Especial Reference to the Pathologic Types and a Review of Some Experimental Work.*
11. *SANFORD, A. H., AND BLACKFORD, J. M. *A Comparative Study of the Effects on Blood-Pressure of the Extracts and Serums of Exophthalmic Goiter and of Other Substances.*
12. LAPHAM, M. E. *Field-Work in Tuberculosis.*
13. STEENSLAND, H. S., AND WEISKOTTEN, H. G. *The Histopathologic Loan Collection and Relieving the Curriculum.*
14. MCNEALY, R. W. *Longitudinal Fractures of the Tibia by Torsion, with Report of a Case.*
15. WATSON, L. F. *Injection of Quinin and Urea Hydrochlorid in Hyperthyroidism; Preliminary Report.*

3. Wolbarst believes that universal circumcision is a measure of decided benefit and that the objection that it is sometimes followed by tuberculosis or syphilis is not the fault of the operation but of the operator. It is a great aid to cleanliness, is a decided prophylactic against infection with syphilis and chancroid; it prevents in great measure the development of venereal warts, herpes and other growths; it offers a diminished tendency to masturbation; it diminishes local complications in the presence of venereal disease and prevents phimosis and paraphimosis.

5. Meyer makes an artificial esophagus from a portion of the greater curvature of the stomach, which he forms into a hollow tube and leads upward from the cardiac end of the stomach to have its exit at the root of the neck.

9. Wilson states that practically all cases of clinically true exophthalmic goiter show marked primary hypertrophy and hyperplasia of the parenchyma of the thyroid gland. In about 80% of cases the clinical severity can be accurately told by the pathological examination. In simple goitre there are marked degenerative changes present.

10. Smith suggests faulty metabolism of iodin as the reason for the toxic symptoms of goiter.

11. Extracts of exophthalmic goiters cause a very marked fall in the blood-pressure of the dog, with splanchnic dilatation and slowing of the pulse. The first injection produces tolerance toward subsequent

injections. The serum of patients at the height of intoxication from acute exophthalmic goiter causes a marked fall in blood-pressure. Apparently the same depressive substance is present in the blood of individuals suffering acutely from this disease.

[E. H. R.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 41. OCTOBER 9, 1913.

1. KROMAYER. *Cosmetic Dermatology.*
2. KRAUS, F. *Othology of the Thyroid, Parathyroid, and Hypophysis, and Their Reciprocal Action.*
3. KLEINSCHMIDT AND VIERECK. *Behring's Diphtheria Vaccine.*
4. *STERN, C. *Tubercle Bacilli in the Skin, Especially of the Face.*
5. SCHILLING, V. *Improved Technic of Bloodsmear and Differential Count.*
6. GILDERBLOM, E. *The Albumin Content of Tuberculous Sputum.*
7. HANLEK, J. *Ischias Kyphotica.*
8. KLEIN, A. *Rupture of Aortic Aneurysm Into the Superior Vena Cava.*
9. ROSENFELD, E. *Silver Preparations in the Treatment of Gonorrhea.*

No. 42. OCTOBER 16, 1913.

1. KOCH, J. *Rabies.*
2. BUNDSCHUH, R., AND ROEMER, H. *Abderhalden's Test in Psychiatry.*
3. *MOEWES, C., AND BRAUTIGAM, F. *Tubercle Bacilli in the Blood.*
4. *STERN, C. *Tubercle Bacilli in the Skin, Especally of the Face.*
5. HEINRICHSDORFF, P. *Zone of Degeneration of the Liver in Pregnancy.*
6. BERGER, F. *Latent Erysipelas and Toxic Eczema.*
7. MOTZFELDT, K. *Three Cases of Patent Ductus Arteriosus.*
8. HAENISCH, G. *Roentgenoscopy in Orthopedic Surgery.*
9. ZADE. *Anaphylotoxins and Pathology.*
10. ENGELIN. *Freud's Psycho-Analysis.*
11. STEIN, A. *Embolism Following Paraffin Injection.*

3. The authors examined the blood of about 50 cases of tuberculosis, including three cases of the miliary type, for tubercle bacilli. In no case were they able to find them. In many cases they found by microscopic examination, acid-fast bodies but these did not resemble tubercle bacilli in either morphology or color. A specimen of every blood examined was injected into animals, none of which developed tuberculosis. The authors conclude that tubercle bacilli seldom enter the blood stream, and that they remain in it as virulent organisms but a short time.

4. Stern found tubercle bacilli, virulent for animals, in 68% of a series of lupus cases. He comments on this source of infection.

[C. H. L.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No 50. DECEMBER 16, 1913.

1. HELFERICH. *Operative Nearthrosis.*
2. *ABDERHALDEN, E. *The Influence of Blood on Protective Ferments.*
3. *BAETGE, P. *The Treatment of Tertian Malaria with Neosalvarsan.*
4. BECK, O. *Syphilis of the Ear.*
5. LINDEMANN, W., AND ASCHNER, B. *The Relation Between Substances Used to Induce Labor and Vaso Constrictors.*
6. FRIED, C. *The Sero-Diagnosis of Malignant Tumors.*
7. MEIROWSKY. *Methods for Observing the Development of Spirochaetae.*
8. LEWINSKI, J. *The Value of Intravenous Injections of Arthigonin.*
9. BOHM, G. *Hegonin in the Treatment of Gonorrhea.*
10. GLÜCKMANN AND GOBBI, R. *Solargyl as a Disinfectant.*
11. BENNECKE, H. *Clinical Observations with Isticin, a New Cathartic.*
12. BRIX. *A Case of Situs Inversus Totalis.*
13. SCHNEIDER, O. *A New Obstetrical Forceps.*
14. EHRENREICH, M. *A New Band for the von Recklinghausen Blood Pressure Instrument.*
15. MERTENS, V. E. *The Treatment of Granulating Wounds by Heloplast.*
16. HÖTZEL, M. *The Therapeutic Use of Camphor, Especially in Pulmonary Inflammations.*
17. DUNBAR, *Dr. Heina Trautmann.*
18. NASSAUER, M. *The High School for Physicians and Patients.*

2. Abderhalden states that over 600 pregnancy tests have been made in his laboratory by the optical and dialysis methods with only one or two errors in diagnosis. To obtain such good results, his technic was followed absolutely. One of the chief sources of error lay in the use of improperly prepared dialysis tubes. The other was due to improperly prepared organ extracts. Abderhalden quotes a series of experiments to prove that traces of blood in an organ will sometimes give non-specific readings, which he believes are due to the presence in the serum of protective ferments against blood constituents. If the blood is removed, non-specific reactions do not occur.

3. Baetge has treated four cases of tertian malaria by neosalvarsan injected intravenously. Each patient was given .9 gms. of the drug, repeated in two cases after a week. In each case the parasites disappeared from the circulating blood at once. In one case a relapse occurred after twenty-seven days. No organisms were found again in the other cases after periods of observation lasting from four weeks to two and a half months.

Baetge concludes that the salvarsan treatment of malaria is of value, not to replace quinine but in affording a means for saturating the parasites instantaneously with a destructive agent.

[R. F.]

No. 51. DECEMBER 23, 1913.

1. SPENGLER, L., AND SAUERBRUCH, F. *The Surgical Treatment of Tuberculous Pleural Exudates.*
2. MOBO, E. *Recurrent Colic in Children.*
3. *HEIMANN, F. *Experimental Studies on the Relation of the Thymus and Ovaries to the Blood Picture.*
4. LAMPÉ, A. E. *The Preparation of Organs for Abderhalden's Dialysis Tests.*
5. OBERMÜLLER, H. *Koch and Fonio's "Coagulen" and Its Use in Rhinology.*
6. UFFENHEIMER, A. *Infantile Paralysis in Bavaria.*
7. BAAR. *Stricture of the Ureter, Resembling Nephrolithiasis.*
8. THILO, O. *The Treatment of Eczema from Formalin Poisoning.*
9. *WEISS, R. *A Simple Apparatus for Quantitating Chlorides in the Urine.*
10. SALGE, B. *The Quieting of Crying Children by Insufflation.*
11. HERRENKNECHT. *A Simple Artificial Nose.*
12. KAUFMANN, E. *Emil Ponfick.*
13. V. MOLO, H. *A. De Nora as Lyricist and Satirist.*
14. NASSAUER, M. *The High School for Physicians and Patients.*

3. To determine the relation of the internal secretion of the thymus and ovaries to the blood constit-

nents, Hermann has removed these glands in a series of young rabbits, making differential and white blood counts before and after operation. To obviate error as far as possible the blood was taken at the same time of day and in the same relation to meals. At later intervals thymus or ovarian extract was injected intraperitoneally and the blood count followed.

In those animals in which the thymus was removed, a fall in the number of lymphocytes occurred, increasing when the gland extract was injected. On the other hand, in the ovariectomized animals the lymphocytes increased, falling when ovarian extract was injected.

Hermann concludes from these observations that the internal secretions of the thymus and ovaries work antagonistically on the blood picture, the thymus setting free substances which stimulate the production of lymphocytes, and the ovarian secretion diminishing these blood elements.

9. The apparatus described by Weiss consists in a graduated cylinder, at one end of which are two bulbs divided by rings into three parts. Diluted urine is poured into the lower bulb to the first mark; a mixture of saturated iron alum and nitric acid to the second mark, and deci-normal ammonium sulphocyanate to the third mark. The mixture is shaken, causing a dark red color. Deci-normal silver nitrate is then added drop by drop, and the tube shaken constantly until the color disappears. The amount of silver nitrate necessary to cause this is read on the graduated cylinder and gives the chloride value in milligrams per cubic centimeter of urine. The results quoted by this method, as compared with Volhard titrations, are sufficiently accurate for clinical purposes. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 45. NOVEMBER 10, 1913.

1. *SCHLEICH, MÜLLER, THELHEIM, IMMELMANN, KRAUS, AND FRIEDMAN, F. F. *Dr. Friedrich Franz Friedmann's Therapeutic and Prophylactic Treatment of Tuberculosis and Scrofula.*
2. KLING, CARL A. *Preventive Inoculation Against Varicella.*
3. VON DEN HELDEN, R. *The Action on the Human Kidney of Extract of Hypophysis.*
4. V. OTT. *Operative Treatment of Cancer of the Uterus and Results of the Same.*
5. MOSSE, M. *Contribution to Our Knowledge of Certain Diseases with Increased Hemolysis:* (a) *Cirrhosis with Pigmentation;* (b) *Splenectomy in Pernicious Anemia.*
6. UNGER, ERNST, *Intrathoracic Surgery of the Esophagus.*
7. LAUTENSCHLÄGER, A. *Introduction of the Tracheal Tube in Meltzer's Insufflation-Anesthesia.*
8. GELINSKY. *Artificial Respiration in Intrathoracic Surgical Operations.*
9. LEVY-DORN, M. *The Production of Radio-Activity from Non-radioactive Elements.*

1. This is a long symposium, given at the Charité Clinic in Berlin, on the Friedmann treatment, and is especially interesting here as showing that in his own country Dr. Friedmann is not held in so much disrepute as here. Five of the speakers, including Friedmann himself, are ardent supporters of the Treatment, while the director of the clinic is, as will be seen, neutral.

Prof. C. L. Schleich (Berlin) eulogizes this method most highly, showing favorable results as proved by Roentgen plates, and concludes by saying "we have at hand a new weapon with which to fight tuberculosis." Prof. Erich Müller of Berlin gives reports of eighteen cases of both surgical and pulmonary tuberculosis, each one showing either marked improvement or entire healing as a result of the Friedmann injections. Dr. Hans Thalheim (Berlin) quotes the histories of sixteen more cases, all with equally favorable results. Dr. Immelmann (Berlin) corroborates the statements of the above from observations he has made on x-ray plates taken before and after treatment: and Dr. Friedmann says a few words about his good results.

Dr. Kraus, head of the Charité, said that the hospital staff were entirely neutral and unprejudiced; that their own cases had not been observed long enough to allow them to draw conclusions; that he had, however, seen one case improve markedly following the treatment, though he himself had advised against it; and that in conclusion he thought this method was harmless and should be given every opportunity to prove its worth—or worthlessness.

It seems clear that many of his own countrymen are by no means convinced that Friedmann's treatment is without value.

[R. H. M.]

No. 46. NOVEMBER 17, 1913.

1. HEDINGER, E. *The Extent of Occurrence of Red Bone Marrow in the Femur of Man.*
2. WEGELIN, CARL. *Fatty Degeneration of the Heart Studied in Relation to Diet.*
3. STEIGER, OTTO. *Blood Findings in Lymphogranulomatosis (So-called Pseudoleukemia and Hodgkin's Disease).*
4. ZUNTZ, N. *Concerning Some Investigations on the Physiology of Digestion and Metabolism.*
5. BLUM, L. *On the Symptomatology and Therapy of Diabetic Coma.*
6. UNNA, P. JR. *Concerning the Electric-Heat Treatment of Leprosy.*
7. LOTSCH. *Concerning So-called Intussusception in Infants.*
8. MARCUSE, H. *The Importance of Jodl's Psychology in Psychiatry.*
9. *PHILIPPSTAL, A. *Clinical Experiences with Atropine Sulphuric Acid-Ester.*

9. This is a new preparation of atropine which the author has tried out clinically with pleasing results. It is less soluble and more easily crystallized than atropine sulphate—compared with the latter it shows also less local reaction at the site of subcutaneous injection. It does not cause so much dryness in the mouth and throat, so much acceleration in the pulse or hyperexcitability as atropine sulphate. After citing a number of cases, Philippstal emphasizes its efficacy as an unusual therapeutic agent in asthma, vagus-neuroses, certain tachycardias, night sweats in phthisis and iodism.

[R. H. M.]

Obituary.

SILAS WEIR MITCHELL, M.D., LL.D.

DR. SILAS WEIR MITCHELL, who died of influenza on January 4, at Philadelphia, was born of Scottish ancestry in that city on February 15, 1829, the son and grandson of a physician and one of a family of nine children. His great-grandfather was the "Mr. Mitchell, collector of exise at Dumfries," who was an intimate companion and patron of Robert Burns, and to whom in 1796 the latter addressed his familiar poem, "Friend of the Poet, tried and leal."

Silas Weir Mitchell obtained his education at the University of Pennsylvania, and in 1850 received the degree of M.D. from the Jefferson Medical College. For ten years after graduation, young Dr. Mitchell devoted himself to general practise, and to the pursuit of topics of medical research. He made a special study of

the chemical nature and toxic action of snake venom, and in 1860 published his first monograph on the "Venom of the Rattlesnake." From his father he had inherited a taste and talent for letters, and during this early period devoted much of his leisure to literary as well as scientific study and writing. It was during this decade also that he made the acquaintance of Dr. Oliver Wendell Holmes, who is said to have praised Mitchell's verse as well as his already admirable prose style.

In 1862, Dr. Mitchell was commissioned assistant surgeon in the United States' Army, and was stationed at Turner's Lane military hospital in Philadelphia in charge of soldiers with nervous disorders and wounds involving the nervous system. In this position he served till the close of the Civil War, and from his experience collected material for the publication in 1864 of his second medical monograph on "Gunshot Wounds and Other Injuries of the Nerves." As a result of this experience also he became particularly interested in diseases of the nervous system, and on resuming private practice in 1865 was led to select neurology as his specialty.

Of Dr. Mitchell's eminence as a neurologist, it is needless to speak, or of the many scientific papers and books which he produced during the succeeding years of his busy professional career. Probably he is most noted for his method of the rest treatment of neurasthenia, the theory of which he developed in "Wear and Tear," "Fat and Blood," and other publications. Altogether about 140 titles attest his indefatigable industry in medical research and composition.

Dr. Mitchell's entrance into the field of literature began with the publication in 1863 of his first short story, "The Case of George Dedlow," in the *Atlantic Monthly*. From that time till the last year of his life, Dr. Mitchell was almost constantly engaged upon some literary work as a recreation, entirely apart from his practice and professional publications. His first novel, "Hephzibah Guinness," was published in 1880; his most famous, "Hugh Wynne," in 1897; his last, "Westways," in 1913. Altogether his literary productions amount to some thirty volumes.

Though Dr. Mitchell's reputation as a novelist is foremost in the popular mind, he perhaps really attained a higher degree of literary excellence in poetry than in fiction. His verses* on the fiftieth anniversary of the demonstration of ether anesthesia at the Massachusetts General Hospital are familiar as a noble and fitting commemoration of that momentous event. Probably his "Ode on a Lycian Tomb" is his finest contribution to letters, in its classic perfection of form and deep sincerity of feeling.

For many years Dr. Mitchell was physician to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, and was consulting neurologist to nearly all the Philadelphia hospitals. He was professor of neurology at the University of Pennsylvania Medical School, and at one time president of the Philadelphia College of Physicians.

Dr. Mitchell received the honorary degree of LL.D. from Harvard in 1886, from Edinburgh in 1895, Princeton in 1896, Toronto in 1906, and from the Jefferson Medical College in 1910. The University of Bologna gave him an honorary degree of M.D. in 1888. He was a member of the National Academy of Sciences, of the British Medical Association, the American Neurological Association, the American Philosophical Society, the London Medical Society, the New York Academy of Medicine, and the Academy of Science of Sweden, and was a fellow of the College of Physicians in Philadelphia, the American Academy of Arts and Sciences, the Royal Society of Great Britain, the Royal Medical Society, and the Royal Society of Literature. He was a corresponding member of the French Academy of Medicine, the Academy of Sciences of Bologna, the German Neurological Society and the Royal Medical Society of Norway. He also was a trustee of the University of Pennsylvania and of the Carnegie Institution at Washington.

Perhaps the most distinguishing feature of Dr. Mitchell's character was the versatility, which enabled him to win distinction in two great fields of activity. Work was not labor to him; idleness he abhorred; and upon whatever he was engaged he worked easily and with zest. Next to Holmes, Dr. Mitchell has won an enduring place in American medicine and literature. It is likely to be long before another American physician wins equal rank beside them.

* Published in the issue of the JOURNAL for Oct. 15, 1896 (Vol. CXXXV, p. 386).

Miscellany.

UNITED STATES MORTALITY STATISTICS IN 1912.

THE census bureau of the United States Department of Commerce has recently published its thirteenth annual report, containing the mortality statistics of this country for the year 1912.

"Unfortunately, the mortality statistics do not include the entire country, but only those states and cities in which the registration of deaths is approximately complete. This area, known as the "registration area for deaths," embraced nearly two-thirds (63.2%) of the total estimated population of the United States in 1912, as compared with only a little over two-fifths (40.5%) in 1900. The increase is gratifying, and there is widespread interest throughout the country, especially in the South, in regard to vital statistics. Virginia has just been admitted, as the result of the model law adopted in 1912, and laws of like character are now in operation in other Southern states, namely Kentucky (admitted for 1911), Mississippi, Arkansas, North

Carolina, and Tennessee. Active efforts to secure such legislation will be made in Georgia and South Carolina, as well as in the northern states of Illinois and Iowa, at the next session of their legislatures."

The 22 states now included in the registration area are California, Colorado, Connecticut, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Utah, Vermont, Washington, and Wisconsin.

"The total number of deaths registered was 838,251, corresponding to a death-rate of 13.9 per 1000 population. The rate is the lowest on record, that for 1911, previously the most favorable year, being 14.2. The year 1912 was also unusually healthful abroad, a new loss mortality figure of 13.3 per 1000 being established for England and Wales.

"By sex, there were 459,112 deaths of males and 379,139 deaths of females. The proportion of deaths of infants under one year to total deaths (17.6%) was slightly lower than that for 1911 (17.8%)."

Though notably decreased, tuberculosis still remains "captain of the hosts of death," having caused 90,360 in 1912, or 10.8% of the total mortality.

"Next came organic diseases of the heart, with 86,179 deaths (adding endocarditis). They slightly exceeded tuberculosis. Acute nephritis and Bright's disease (62,267), pneumonia (51,495), congenital debility and malformations (48,596), cerebral hemorrhage and softening (46,797), cancer (46,531), and diarrhea and enteritis of infants under two years of age (42,482). There were 63,385 deaths from external causes, of which 49,775 were due to accident, 9656 to suicide, and 3954 to homicide. The suicide rate (16 per 100,000 population) was slightly lower than that for 1911 (16.2), and is the same as the average for 1906 to 1910.

"Typhoid fever, with 9987 deaths (16.5 per 1000), showed a notable decrease from the preceding year (12,451) and a most gratifying reduction from the average rate for the five-year period 1901-1905 (32). In other words, it has been cut in half in the last decade, although our rate is still high as compared with some European countries."

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING JANUARY 17, 1913.

January 9, Surgeon U. R. Webb, detached, Naval Hospital, Olongapo, P. I., to Pacific Reserve Fleet.

P. A. Surgeon J. C. Woodward, ordered to command the Naval Hospital, Olongapo, P. I.

P. A. Surgeon E. O. J. Eytinge, to Naval Hospital, Mare Island, Cal.

January 10, P. A. Surgeon D. C. Cather, detached: Philadelphia Hospital, to Great Lakes Training Station, Ill.

January 12, P. A. Surgeon W. H. Short, detached: Key West to Naval Station, Guantanamo, Cuba.

P. A. Surgeon E. W. Phillips, detached: Marine Recruiting Station, Chattanooga, Tenn., ordered to Naval Hospital, Philadelphia, Pa.

SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT MEDICAL SOCIETY (Surgical Section).—A meeting of the Society will be held Feb. 4, at 8.15 p. m., at the Boston Medical Library.

Dr. C. A. Porter, "Surgery of the Peripheral Nerves."

Discussion by Drs. W. E. Paul, J. J. Thomas, E. H. Nichols, Harvey Cushing and J. S. Stone.

HORACE BINNEY, M.D., *Secretary.*

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The spring meeting will be held in Sprague Hall, Medical Library, Boston, on Wednesday, Feb. 4, 1914, at 2 o'clock.

The following papers will be read and discussed:

1. "Two Automobile Cases." Harry M. Cutts, M.D., Medical Examiner, of Brookline.

2. "The Delaney Murder." John W. Pratt, M.D., Associate Medical Examiner, of Dedham.

OLIVER H. HOWE, M.D., *Recording Secretary.*

MEDICAL LEGISLATION AND MEDICAL EDUCATION.—The tenth annual conference of the American Medical Association on Medical Legislation and Medical Education, called by the Council on Health and Public Instruction and the Council on Medical Education, will be held at the Congress Hotel, Chicago, Feb. 23 and 24, 1914.

LECTURE ON PELLAGRA.—A lecture will be given under the auspices of the Graduate School of Medicine on "Pellagra" with particular reference to its prevention, by Dr. Philip E. Garrison, M.D., of the United States Navy on Tuesday, Feb. 3, in the amphitheatre of the administration building of the Harvard Medical School at 5 o'clock. Dr. Garrison is acting as one of the instructors in the Harvard School for Tropical Medicine. The medical profession is cordially invited to attend this lecture.

THE BOSTON SOCIETY OF MEDICAL SCIENCES announces a meeting of the Harvard Medical School Historical Club (William J. Kerr, secretary) on Tuesday evening, Feb. 3, 1914, in the amphitheater of the Peter Bent Brigham Hospital, at 8.15 o'clock.

Program: History of Variola and Vaccination. Dr. Cushing, "Pock-marks in the Twentieth Century." Dr. Francis P. Denny, "An Old Diary of Prevaccination Days." Dr. Rosenau, "Demonstration of Vaccination." Dr. Rosenau, "Life of Jenner." Dr. Farlow, "Exhibition of Jenneriana from the Boston Medical Library." Books, letters, documents.

DR. THOMAS ORDWAY, *Secretary and Treasurer,*
Harvard Medical School.

APPOINTMENTS.

DR. HERMAN M. BIGGS, formerly general medical officer of the New York City department of health, has been appointed health commissioner of the State of New York.

COL. WILLIAM C. GORGAS, M.D., chief sanitary officer of the Panama Canal Zone, has been appointed surgeon-general of the United States Army.

DR. EDWIN HEMPHILL PLACE, of Boston, has been appointed assistant professor of pediatrics in the Harvard Medical School from Jan. 1, 1914.

RECENT DEATHS.

DR. LEMUEL W. FOWLER, of Boston, who died on Jan. 20 at West Stoughton, Mass., was born in New Brunswick in 1854. After receiving his preliminary education on the provincial normal school at Fredericton, N. B., and teaching for a time in the local public schools, he entered the Boston Dental College, from which he graduated in 1884, since when he has been actively engaged in the practice of his profession in this city. He is survived by his widow, by one daughter, and by two sons, one of them also a dentist.

Original Articles.

A PROGRAMME OF PRACTICAL MEASURES FOR MENTAL HYGIENE WORK.*

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

THE magnitude of the field of public work in mental hygiene, the manifold ways in which a well-directed and energetic society of this nature may initiate, stimulate and further measures for the amelioration of the condition of the insane and mentally defective, as well as the possible prevention of mental disease, makes one wonder why we should have waited so long for it. Not until recently have we been able to gauge the public interest in this direction, and the result of the exhibits and addresses already given testify to a general eagerness for enlightenment on this vital question.

Although this society is chiefly concerned with the instruction of the community in the prevention of mental disease, another of its stated objects and an equally important one is that of helping to raise the standard of care and treatment of the insane and sufferers from nervous disease throughout the country, and this will be the subject of my address. Much of it is an old story to the alienist.

Considering the very inadequate allowance made by the state for salaries and wages of officers and nurses, the Massachusetts hospitals for the insane have done efficient work in the care and treatment of patients and their regular and diversified employment and in the instruction of nurses. In scientific work they are coming to the fore. Our laws relating to the insane must surely be advanced and serviceable else they would not have been adopted, as have many of them, by other states. But in the adaptation of natural conditions of home life to the insane within their walls through trained visitation and help such as is nowadays, through social service channels, accorded to the sick and invalid poor in their homes, much remains to be done.

We have long held that there is a large field of usefulness open to a resident social worker in the state hospital, lying between the duties of the hospital physician and nursing staff. Social work away from the world seems paradoxical. Nevertheless, the hospital is the only home and "the ward" the only society of hundreds of semi-sane chronic cases, and the misfortune by which they are deprived of family life should not forever debar them from the individual personal attention, regular friendly visits and frequent advice which form the daily round of duties of the trained social worker in outside cases. Visitation by committees of charitably interested neighbors is often urged, but such efforts only touch the surface of the patient's individual interests and needs, however valuable they may be for purposes of inspection. Intra-hospital social work with the individual patient, might be combined with a number of similar duties on the wards and a systematized department of the hospital's activities be thereby developed. Besides regularly visiting and striving to befriend and interest such suitable patients as the physicians may designate, this worker should undertake the proper circulation of the library books and other publications, with which our state hospitals are well supplied, but which are far too little utilized. She might also be responsible for the entertainments and diversions of all kinds enlisting and interesting both patients and nurses in their preparations and soliciting the aid of outside individuals and societies. By all means let us not allow the insane in our institutions to be left behind by the mill and the department store in such "welfare work."

The eugenic field workers now drafted by our hospitals solely for outside disease-heredity investigations are educated, adaptable and sensible women. Their work offers the great advantage of an insight into the home conditions in which patients live and have been brought up. Should not such knowledge be turned to its most beneficent use in enabling the eugenic worker to be a practical help as a social worker, both in establishing friendly relations with the patient while in the hospital and by her familiarity with the family surroundings, protecting him or her from adverse conditions after leaving the institution? Such an officer would be invaluable and should be well paid. In two of the State hospitals the eugenic field worker has already been turned to similar uses, and it should interest all friends of the insane to see hospital activities taking this trend.

Another direction in which the resident social worker may be of service is in visitation in connection with the family or boarding-out system of caring for selected cases from the chronic, harmlessly insane taken from the institutions, of whom small groups are settled in families in the neighborhood of the state hospitals, under state supervision. This department is not much heard of, but has been in operation in this state more than twenty-five years. The number of patients cared for is not far from three hundred. Those who have had charge of the work make no question of its advantage to the patient, the interest of the family in their charges, and the readiness with which suitable families are found to undertake their care. Those best informed believe that a very much larger number —three or four hundred in about each of the eleven state hospitals—could be so cared for and that the extension and full development of the system is imperative. Besides the elasticity of the system the economy to the state resulting from such a provision, because of the fact that no construction will ever be necessary, is a most important advantage. This measure is surely

* Read before the Massachusetts Society for Medical Hygiene, April 2, 1913.

one to be encouraged by this society because of its possibilities in the way of betterment of the mental health of the state's charges.

Another measure which as many will be interested to know has proved of benefit to the health and happiness of hospital patients, is the establishment of summer quarters at a distance. We all know the advantages which follow change of residence in suitable cases of mental disease; similarly, opportunity for a "vacation" from the hospital ward among country or seaside surroundings is a real boon. Occasionally patients supposed to have become doomed to permanent insanity have taken there the first step toward the restoration of their reason, so great is the effect of this change, many have improved and almost all are in some degree the better for it. The state hospitals in Maine, New Hampshire, and a few private hospitals in other parts of the country have summer quarters for this purpose to which they send relays of patients every year. Most well equipped general hospitals have, we all know, convalescent departments far removed from the main buildings. Why should they not be more generally provided for the insane?

The education of physicians in mental medicine is sadly deficient. We are much behind the times in this direction, although clinics for instruction in mental disease have been for many years an important branch of medical training in Germany. At Ann Arbor, however, in Albany, in Boston and Baltimore, there has been considerable progress following the establishment of psychopathic hospitals and wards for mental cases in general hospitals and the outlook is promising. But why should not each state hospital be oftener utilized for the instruction of the local practitioner in his neighborhood? It will be a very long time before any but the largest cities can maintain and profitably conduct psychopathic hospitals, and even they may be far out of reach for many busy physicians. Moreover, the medical and scientific spirit in our hospitals might be much encouraged by the establishment of closer relations between the medical staff of our hospitals and outside physicians. A practical step in this direction would be the practice of holding every year at least, at each of our state hospitals a meeting of the medical society of the district in which it is situated, as a regular custom. At such meetings clinics could be conducted by members of the staff and the affair made a scientific and social occasion. In this way the bonds of professional fellowship between the isolated hospital physician and the general practitioner would be strengthened, the outside physician would receive, a little, but valuable instruction in psychiatry, which he sorely needs and would welcome, and the attitude of the community toward the hospital would tend, through his influence and personal knowledge of the medical work done in our institutions and the way in which they are conducted generally, to become more friendly and appreciative. This has been done, to be sure, in one or two of our hospitals on rare occasions. Might it not well be made a regular annual custom with all? On one occasion of the kind the members of the district medical society, who attended a meeting at the Taunton State Hospital in large numbers, were so much interested in what they saw and learned that the society published for the benefit of its members the papers that were read and the demonstration of the cases that were given. The Central Indiana Hospital does much more. Its staff gives a course of a dozen or more lectures to all physicians of the neighborhood who may wish to come. This is open to them free of charge. The lectures are accompanied by illustrations and clinical demonstrations.*

The value of popular lectures on insanity, also, in connection with the leading medical schools, has been fully demonstrated both in New York City and in Boston, if the size and interest of audiences is any criterion. They should be generally made use of in all the large cities of the country.

The pressing needs of the mental defectives in this state who, especially of late, have been brought to light in such large numbers in schools, prisons, and other institutions, besides those especially provided for their care, will be told by Dr. Fernald, a far better authority than I. Let me, however, add my voice to the general demand that is so urgent for the speedy erection of another institution for the care and training of this class, and heartily endorse, more especially, the plea that he has made for the continuous segregation of the defective delinquent. The stand which he has also taken on the subject of the sterilization of defectives is a sound and most needed *ex cathedra* protest against hasty and, as many believe, hazardous legislation on a most radical step, involving private rights and public morals.

We do not sufficiently realize that there is a large field for practical work against mental disease and disorder which is as yet undeveloped, indeed, scarcely entered upon. It comprises the outside, non-hospital cases, some of them insane, others defective, breaking down or hopelessly weakened in mind and others on the borderland of vice, crime and mental unsoundness. Taking the insane alone, we find that during the past six years between eight hundred and fifteen hundred unrecovered patients have been discharged from the Massachusetts state institutions. All of them, of course, remain at large for a time, most of them for a year or more at least, and the rest finally are returned to the institutions. Making every allowance, therefore, it is safe to say that with this yearly supply of discharged patients there must be from this source alone a constant residue of at least a thousand unrecovered insane persons at large in the community.

* Since this lecture was delivered a clinic in Mental Diseases, given by the Boston Psychopathic Hospital staff on two days in the week, has been established with the object of making that hospital a centre of advanced training of physicians in psychiatry.

In addition, there is a large contingent of cases, a fair proportion of whom are presumably of the milder and more curable forms of insanity, who never reach the hospital at all. In 1904, six hundred and eighty-five physicians, comprising less than one-seventh part of the medical men of the state, reported to the Board of Insanity, in reply to a circular letter, that of the 2428 cases of mental disease coming under their observation, but 55% had been committed to hospitals for the insane, while 38% had been treated at home and the rest elsewhere outside of institutions. Had all the 5280 physicians in the state been heard from, the figures would have been even more impressive as regards the number of insane outside of institutions, even allowing for the duplication of cases.

Now, although through recent legislation the discharge of unrecovered patients who have shown dangerous tendencies is quite closely safeguarded, many of the perhaps harmless remainder in the community also need supervision, some of them treatment and some a radical regulation of their life and surroundings. Fortunately, it has become a rather general practice, which should be extended to all of this class, to discharge unrecovered insane patients on a "trial visit" through the legal provision which allows a six-months' probation, so to speak, within which time they may be either returned to the hospital, should their condition make it necessary, or be finally discharged at the end of that period. This practice is by no means so general in other states as it is in Massachusetts. It might well be one of the first to be uniformly adopted by superintendents of hospitals for the insane throughout the country, and we hope it will be everywhere urged by our National Society for Mental Hygiene. At the Taunton State Hospital it has been the custom for the last four years to require unrecovered patients so discharged to report in person at the hospital once a month. This practice has been attended with gratifying results and no hardship to the patients. On the contrary, they often spend an hour or two visiting their old friends in the wards. They seem to appreciate the advice given them and have been materially aided in passing the trial period successfully and re-adjusting themselves to home life.

Here comes in still another avenue of social service, through visitation of the homes of these patients who are out on trial visits. The social worker, through her familiarity with family conditions and the patient's requirements, should here be most helpful, either in removing disturbing influences and regulating unhygienic surroundings, thereby making the probation successful, or in preventing in season insane manifestations which require the patient's return to the hospital. By her intimacy with the family, she would also be looked upon as an interested friend and thus be enabled to keep in touch to some extent with the after-progress of the case. The Metropolitan District about Boston offers exceptional advantages for social service work for outside cases—of which the Boston Psychopathic Hospital has begun to avail itself—because of the many facilities in the way of charitable organizations to turn to for help in placing and visiting patients. In the case of hospitals farther removed from the large centres, it would probably be of great advantage to have the headquarters of the social workers at these institutions, placing the department in charge of the resident worker.

Now, a few words in regard to the class of cases to which after-care, the main object of social service, chiefly applies. The discharged chronic insane, as I have said, need oversight and regulation of their life, but it is with the just recovered and convalescent insane patient that the greatest good can be done. Social service should not be exclusively devoted, by any means, to those who are still somewhat insane or weakened in mind when leaving the hospital, but, knowing as we do, the liability of relapse in mental disease, it is of the greatest importance that the apparently fully recovered patient should not be again exposed to the disturbing conditions and harmful surroundings among which his attack originated. If such cases can only be started on the right road we shall have taken the most practical and perhaps effective step toward the prevention of mental disease that is available. As we have said elsewhere,* in the matter of prevention of mental disease it is a far cry from theory and advice to practice. The education of the public in matters of mental and bodily hygiene so that it shall be productive of real, perceptible diminution in the amount of insanity in the community is necessarily a very, very slow process. Nor can the physician himself always feel sure of his ground in the vast complexity of conditions, personal and social, general and special, hereditary and acquired, which combine in varying proportion and degree to produce a case of insanity. Moreover, could we be sure of the cause or causes that would invariably bring on an attack of insanity, all know how little the warning would be heeded by people in general.

Therefore, the supervision and protection of those who have recovered or are convalescing from attacks of insanity would seem to offer by far the most promising field for prevention effort. In this way alone can we hope to ward off relapse or prolong the intervals of sanity between attacks that are inevitable, thereby helping to lessen the vast accumulation of insane patients in our institutions, a large proportion of whom have been admitted a second time, or oftener. When a patient has once undergone an attack of insanity we can with some certainty ascertain the unfavorable conditions that have led up to it, and can endeavor to improve them, thereby guarding against a relapse. We then know the individual victims, and have,

* The Charities Review, March, 1899.

at least, an actual, tangible, present situation to cope with in the unhealthy surroundings, disease, poverty and stress-conditions of specific cases. Besides, when once an attack has been experienced, both the patient and his relatives for a time at least, are amenable to advice and direction through fear of a return of the trouble. The observation of the progress of convalescence and recovery from insanity becomes itself a lesson in prevention. It is a critical stage, beset with dangers which call for the most careful precautions in order to prevent a relapse. Nowhere is this more frequently observed than in the case of the individual private patient. The countless pitfalls for the reawakening and weakened mind through the indiscretion of the patient, his relatives, or his nurse, and the safeguards necessary, must impress all physicians to the insane.

It is usual on such a patient's recovery from an attack of insanity to advise a trip or a rest in the country as a preliminary to taking up the old life and occupation at home; in fact, the entire year following recovery is a critical time, within which we can never feel sure that mental health has been solidly reestablished. If these are the perils and needs of the patient in good circumstances, whose means and the solicitude of whose family are of the greatest assistance to him in regaining a firm foothold upon health, how desperately unfortunate must be the insane person who is poor, on his discharge from a hospital with scant advice, if any. He has no one to encourage him or to provide the assistance which he may need during the next month or two, just as, with impaired mental and bodily vigor, he is entering the struggle against the forces of want and distress which brought him to the hospital. The patient of small resources who has been insane has generally lost or exhausted all his means, and months, and sometimes years, have passed during which he has produced nothing for himself or his family. The fact, also, that he has been in a hospital tells against him for a considerable time after his return, owing to the ignorant popular prejudice against one who has been insane, and it is much more difficult for him to obtain employment. Instead of the extra consideration he deserves, he now, for a time at least, receives the cold shoulder.

The hospital for general diseases has its separate convalescents' home, miles distant, perhaps, from the main building. Of the very numerous homes and retreats for this purpose at the command of charitable organizations of different kinds, not one is for the insane. Convicts on their discharge from prisons and reformatories have long been aided and encouraged by societies for their relief, while for the insane patient who has suffered through no fault of his own there is no provision of the sort in this state to guard him against the return of a malady, recovery from which is in every sense far more difficult than from any other disease. There are, to be sure, states blessed with charitable laws, where patients are given a new outfit of clothing or perhaps a sum of money on leaving the hospital, but this is the utmost they receive. There are few institutions, moreover, where it is the rule even to give precautionary advice to departing patients and their relatives. They receive at best a few general directions, while it oftener happens that their discharge is unknown to the physician except by report. A renowned French alienist and humanitarian, Dr. Giraud, states that he considers the fundamental principle of "after-care" to be the following:—"Society has not fulfilled its duties to the insane when it has helped them to be provided for and treated in asylums if, on their discharge, it leaves them without support and without resources, and exposes them to causes of relapse." He also adds the obvious argument that we have repeatedly urged, that "this is an omission not only from a humanitarian, but from an economic point of view."

This is not a work of such magnitude as it would appear to be. It calls for a week or so of inspection by an agent of the after-care-association, if one be formed, or a social worker from the hospital who shall make sure that the home surroundings are suitable, provide situations and other material help, if need be, for all needy patients, etc. There should be a systematic supervision of the homes and regulation of the family conditions there existing until the patient is so settled that he starts upon his life and work under good auspices. New York State for several years has had after-care associations in connection with a number of her hospitals and much good is done. It is unfortunate that our own state, whose alienists brought the "after-care" project to the front in this country years before social service for any purpose was advocated should have waited so long to put into practice. The great expectations in this direction that have long been held out in connection with the outpatient department of the Boston Psychopathic Hospital seem now about to be realized, but we should not wait for its development there—the work might be equally well taken up at all our state hospitals. Thus far the social service department of the Massachusetts General Hospital and, notably the Boston Dispensary, have alone made any attempt in this direction although in a very limited field. There has been no coöperation on the part of our state hospitals. It should be one of the principal activities of this society to extend social service to discharged insane from our institutions. If it should be thought wise for the state to take up the work, it should have the hearty coöperation of this society.

Finally, there is a most important line of mental hygiene work which cannot be said to have really seen the light in this country, and I must here renew my plea for the establishment

of charitable sanitaria for the cure or relief of sufferers from nervous diseases who are poor or of moderate means and who are not insane. Years of neurological dispensary work among the poor have convinced physicians so engaged that nervousness, neurasthenia, hysteria, psychasthenia, etc., are quite as prevalent among the indigent as among the well to do. These patients are not insane, but without proper care may easily become so, while under suitable care they may be reclaimed and become useful members of society. The deplorable situation in which sufferers of this class from purely nervous diseases find themselves must surely appeal to us all, but there is no sanitarium in this country, (so far as can be ascertained by a careful inquiry of the leading neurologists living in the larger cities) in which poor or indigent nervous cases in any number can have the exclusive care and prolonged treatment that their malady demands. This great need has long been the subject of complaint among neurologists. In this lack of means for thorough hospital care and treatment of public cases coming in its special line of work, neurology is sadly conspicuous among the departments of medicine generally.

To be sure, there are public dispensaries, polyclinics, and even wards of hospitals which are devoted to the treatment of such patients. But they are very far from being adequate. The chronic nature of nervous malady makes the medical relief obtainable through the short stay, the routine prescription and the advice there provided, of slight and evanescent benefit in many cases. The prime requisite for their improvement is, as we all know, removal of the patient from disturbing influences and environment,—from the emotional conditions bred by anxiety and misery in the struggle for his daily bread. But even this is of little avail unless ample time be given for rest and recuperation. That the few days or weeks that answer for the physical and mental relief of other diseases are of little avail in this class of cases, and that disease which has been long in coming on will be slow to leave, have long been the axioms with which we confront the nervous invalid who is in better circumstances.

A certain number of the poorer unfortunates are sent, after a vain search for better quarters and refusal of admittance on all sides by other institutions, to homes for incurables or convalescents where they may, perhaps, remain a little longer, but where it is impossible for them to obtain what they most need,—the medical advice of physicians, both visiting and resident, who understand such special morbid states and know how to combat and either renew or relieve them. General hospitals are not equipped or adapted for their care, and interest in their special treatment is lacking. There are also wards exclusively for nervous cases in a few general hospitals, but except for the opportunities they afford for clinical teaching they are little better and for the same reasons. Moreover, no cure can be effected in such cases without attention to the details of every day life. This is impossible in a general hospital ward. What such patients need is separate institutions or sanitaria, specially constructed and equipped, where they can have the intelligent technical care that their disease necessitates and treatment for the weeks and months that such cases require before they can really improve. Of course, rest must not be pushed too far as the weakened organ requires strengthening and diversified and interesting occupation graded and suited to the strength and other requirements of the individual must be a prominent feature of the treatment. For want of such provision these unfortunates who are often misjudged by the family and friends "go," as Laehr forcibly puts it, "from doctor to doctor, clinic to clinic, healer to healer, in a vain search for what they need." The growing number of private sanitaria for the more affluent nervous patients shows in itself that this is recognized as the only way in which their proper care can be fully attained. They are a boon to the rich, but are for them alone.

During the last fifteen or twenty years the subject of such special sanitaria has also been agitated in Germany where a number have since sprung up while plans for others are on foot. In Switzerland and Sweden also similar sanitariums have recently been established. Does not our knowledge of this great need make it our duty to help meet it? Should we not inform larger circles of the spread of nervous disorders, of the comparative uselessness of the present modes of treatment in most cases, and the loss to the family and society of the working power of these patients?

The class of cases suitable for sanitarium treatment embraces nearly all the forms of nervous disease except epilepsy, for which special institutions are now being gradually provided in the different states. Besides neurasthenia or psychasthenia—hysteria, hypochondria and mild melancholia, migraine, chorea or St. Vitus' dance, shaking palsy, tic, etc., would be found to profit much by an occasional stay in a sanitarium of this kind. Others are the sequelae of apoplexy, cerebral paralysis in children, early paresis of the mild form, and tabes or locomotor ataxia in the early stages, myelitis, infantile paralysis, muscle atrophies, joint diseases, etc. Such an undertaking should be of the nature of a villa colony with a main building for administration and therapeutic purposes—dwelling houses, work shops, agricultural buildings, farm buildings, dairy, granary, etc.

We should all agree with Jacoby of New York, a warm and able advocate of such a provision that the state can hardly be appealed to for aid until the practical proof of its necessity and benefits has been furnished, and it is even questionable whether it would be wise to seek state support in the beginning. The institution

being essentially a charitable one, it will be found that the impressible neurasthenic will be more willing to place himself under treatment, and will do so with greater freedom of mind, if the colony is a private, rather than a state charity. There are, to be sure, many appeals and plans afoot for charitable purposes, and the process of awakening the attention and interest necessary to lay the foundation of such work would be a long and difficult one, in spite of the general knowledge of the increase of nervous disorders; but we have not yet even made the endeavor, and it might well happen that such a charity would strongly appeal to the very class in which the effects of nervous overstrain are particularly prevalent, the "hustling," never-resting business man whose prosperity has been bought at the expense, perhaps of his nervous health. The history of European colonies of this kind, moreover, should lead us to expect with all confidence that ample financial support would be forthcoming.

This list of measures for bettering the condition of the insane and nervous among the poor is a formidable one, but even so, it does not cover all their needs. If, however, this society should each year take up but a single one of them and devote to its furtherance persistent, energetic and united effort, we may feel sure that valuable beneficent results would soon follow.

PRELIMINARY REPORT ON CONTROL OF PERCUSSION BY MEANS OF THE ROENTGEN RAY.*

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HAVING studied this question for a short time only, I am not prepared to add anything to existing knowledge. My desire is to bring out discussion and to stimulate interest in a branch of work which seems worthy of more attention than it has received in this country.

You are familiar with the variations in the size of the heart shadow which are referable, in individuals, to differences in body weight, stature, age, sex, and occupation. You know the three forms of heart shadow which depend chiefly on the shape of the thorax; you know the difference in position of the heart in the sexes, the shape commonly seen in old age, and the changes of position of the heart in the phases of respiration. Besides these differences, there are minor variations, not easy to define, which are comparable to individual peculiarities manifested in other parts of the body; as, *e.g.*, in the face.

It has been maintained by Moritz, Dietlen, Treupel and others that outlines of the heart having a certain degree of individuality can be obtained by percussion, and that these outlines correspond fairly well with those obtained with the orthodiagraph. Dietlen and Treupel have published large series of diagrams from actual cases. Their diagrams show the outline of the heart shadow as determined by orthodiagraphy, and also the outlines of dullness to percussion. Granted that the diagrams have been reproduced accurately and that subjective errors were suppressed as far as possible in their preparation, the following conclusions may be reached, namely, that the heart can in fact be outlined by percussion with a considerable degree of accuracy, that, not only can the three types of normal heart be recognized in this way, but that the outlines are to some degree characteristic for the individual heart.

Before discussing percussion in detail, let us consider the means and methods by which the results of percussion are to be checked. I refer to teleroentgenography and to orthodiagraphy, of which Dr. Dodd has just spoken. It is not necessary for me to compare them. Each has errors and advantages peculiar to it, and there are other errors common to both. Teleroentgenography, being more mechanical and less subjective, is likely on this account, to give the more reliable pictures. The unavoidable margin of error for either method, when skilfully used, is probably below that for the best methods of percussion. It has been stated by others that the unavoidable margin of error for percussion may be 1 cm. That for orthodiagraphy has been variously estimated at from ½ to 2 cm., but it seems likely that, in the hands of experts, the error will seldom exceed ½ cm.

Therefore, it is right that we should control our percussion by means of the Roentgen ray, but it should be borne in mind that no method of comparative measurement of the heart has yet been devised which is truly accurate, and that the results of any method can be accepted only with reservations.

Passing now to percussion itself, let us consider some of the difficulties met with in its use. In the first place, many kinds of percussion have been recommended, and the style of percussion in practice varies much among individuals. Similarly, the results of percussion, that is to say, degrees of difference of note and type of note vary with the kind of percussion, and with the method of using it of the individual percussing. It follows logically that interpretations of these differences of note will not be the same, and, in fact, disagreement among physicians about percussion outlines is so common as to excite no surprise. But, even when physicians outline the cardiac dullness quite differently, it

* Read by invitation in conjunction with Dr. Dodd's paper at the meeting of the American Roentgen-Ray Society. Boston, Oct. 4, 1913.

does not follow that they will disagree as to the presence or absence of enlargement of the heart. On the contrary, I believe that men of experience generally agree substantially in a given case as to the presence or absence of definite cardiac enlargement. Slight hypertrophy of the heart, unless there is some dilatation also, cannot be demonstrated by any method of percussion, owing to the wide limits of variation between the hearts of normal individuals. For the same reason, slight hypertrophy may not be demonstrable in the heart shadow, however obtained.

Treupel compared the results of three types of percussion with orthodiagraphic outlines, from the same patients. He found the very light or "threshold percussion" to be rather the more accurate. He had good results also with the "touch percussion" of Ebstein and with Moritz's modification of ordinary, moderate finger percussion. The heavy type of percussion is being abandoned, and there is a growing tendency to outline both the absolute and the relative cardiac dullness rather than to be content with either alone. They are complimentary when used together, and tend to correct each other. One can go a step further by marking out curves for very slight dullness, moderate dullness and absolute dullness.

We come now to what seems to me the crux of the matter. Three questions arise. First, What changes of note characterize dullness? Second, What degree of such change shall we recognize as dullness? Third, Is the dullness produced by the heart, by the varying structure of the chest wall, or by various other possible causes? We must not be led astray by differences of note other than those characteristic of dullness. We must take into account the fact that the percussion note at a given part of the chest can be influenced by accidental factors such as muscular contraction, and that such factors may produce slight dullness. We should recognize also the following facts which have impressed me more and more, but which, I think, are not always conceded, namely, that the chest of every individual has a more or less individual tone, and that it is difficult to find two areas on any chest wall where the percussion note will be the same, even though the areas chosen be side by side, or at corresponding points on opposite sides of the chest. If any of you doubt this, I hope you will test the statement yourself in a perfectly quiet room, using a percussion stroke just strong enough to elicit audible lung resonance. The variability of note thus encountered is so confusing at times that I occasionally rely more on the degree of resistance appreciable to the plexímeter-finger than on the note itself, and I think that most practitioners use this feeling of resistance in the same way.

Here again difficulties are encountered because resistance varies with the changing width of the interspace percussed, because the costal cartilages run across the interspaces at an angle near the sternum, and because the relative resistance produced by the dome of the diaphragm or by the corresponding upper part of the liver near the base of the lung may mask the resistance due to the heart.

If all differences of note and of sensation have been correctly interpreted, and if an accurate outline of the heart has been obtained by percussion, we have reason to be pleased with our success.

If there is failure in any respect it may be found that we are trying to compare cardiac dullness too literally with a shadow produced by parallel rays, and that we have not allowed for the curve of the chest wall, which often permits dullness to appear beyond the apex of the heart. This apparent error of percussion, when it occurs, is magnified by the thickness of the chest wall when the point determined on the outside of the chest is compared with the sagittal shadow of the heart itself. The discrepancy so produced was emphasized by Moritz, and has been recognized by others. In cases where dullness reaches thus beyond the apex of the heart the error is not one of percussion, but of interpretation of the findings of percussion.

I believe that those who teach percussion are in duty bound to test their methods carefully by means of x-ray examinations, that orthodiagraphy and teleroentgenography can furnish valuable aid to the clinician, and that the advantage of using them has not received the recognition it deserves in this country.

Before finishing, I wish to express thanks to Dr. Dodd for suggesting the work, and to Dr. George Holmes for help in the work and for taking the plates.

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RELATION OF FOOT AND LEG MUSCLES TO THE STATICS OF THE BODY.

BY C. L. LOWMAN, M.D., LOS ANGELES

IN an article entitled "The Relation of Thigh and Leg Muscles to Malpostures of the Feet," published in the BOSTON MEDICAL AND SURGICAL JOURNAL, Jan. 18, 1912, I pointed out one of the chief factors causing deviations from the

normal leg balance. Further study and observation have brought to my notice many interesting facts in the relation of foot and leg positions to the statics of the body. This is especially true of its *middle segment*—the pelvis and lower back regions.

In examining and checking up cases of postural strains, or of bad body alignment, in patients with foot ailments, or backache—or both—I frequently find points of tenderness to pressure or motion, in front of the hip joint at the point of attachment of the Y ligament; also along the posterior margin and the upper angle of the great trochanter where the pyriformis and other muscles of the external rotator group are inserted.

We know that any increased muscle pull requires a greater anchorage for the point of origin or insertion of that muscle. Furthermore, that constant tension on a point of tendinous or ligamentous attachment, may excite periosteal irritation and subsequent thickening of the bone at that point. Examples of this condition are found in the exostoses of the os calcis,—either on the plantar surface or where the tendo Achilles fastens—and in the enlargements of the adductor tubercle and inner femoral condyle.

I first noticed in the radiographs of some chronic backache cases, and in other cases of severe malposture, a marked lipping of the posterior angle of the trochanter major—enough in some instances to form a real spur. Then a couple of cases sent to me for suspected hip disease were promptly relieved by proper foot adjustment. Several more cases presenting sciatic symptoms—pain in the region of the sacro-sciatic notch, hip, sacro-iliac area, and lower back—also yielded to the same procedure. I then began to correlate the findings, arriving at the conclusion that the inward rotation of the thigh—throwing the knees out of line and producing or accentuating valgus ankles—was responsible either directly, or as a contributing factor, in the production of these symptoms.

Similarly, I have found in cases of back strain, that a constant tension on the ilio-lumbar ligament had produced, at its points of attachment, a lipping of the vertebral margins and a thickening of the crest of the ilia, accompanied by spur formations. In one case there was almost a complete calcification of this ligament, although the patient presented no symptoms of any osteoarthritic process. She had a loose sacro-iliac joint with a tilting of the pelvis, and a slight rotation of the fifth lumbar vertebra. She was of the relaxed type, and had formerly practiced on the violin four or five hours a day. In other cases in which osteo-arthritic changes were more marked there were findings showing postural defects which had preceded, by many years, a so-called "rheumatic" condition. This is in harmony with the idea expressed by Preiser that mal-alignment has an etiological bearing on later arthritic processes.

It has been my habit in examining and talking with patients to say, "You have two ends to your leg; if one end deviates, something will surely happen to the other end." So with simple pronation cases, valgus ankles, and knock knees, the inward rotation of the leg keeps the external thigh rotators on a tension—particularly the pyriformis. The anterior margin of the great trochanter is, of course, displaced forward. This makes pressure against the structures in front of it. Tension is made, also, on the insertion of the psoas by the rotating of the lesser trochanter inward.

The psoas and pyriformis—two very important muscles connecting the thigh with the vertebral column—are further affected at their upper extremities by the posture usually assumed by patients with weak, flat, or round backs. Measurements made with a pelvimeter will easily demonstrate that the distance from the tips of the spinous processes in the mid-lumbar region to the symphisis, if taken in the relaxed posture, will be much greater than when the patient assumes the correct position with the lumbar curve thrown forward. The increase will vary from one-half to two inches. Thus it will be seen that these muscles are kept pulled sufficiently taut, both at their origin and insertion, to produce irritation at their points of attachment. In a tilted pelvis caused by a short leg, unilateral flat foot, or congenital defect, one would get a similar state of over tension on these muscle groups. In the weak back position, the support of the sacro-sciatic ligaments is slackened by the rotation of the tip of the sacrum forward. This gives the lessened anterior curve which usually accompanies these cases of relaxed posture. Cases of weak or slipping sacro-iliacs, so frequently due to weakened ligaments and loss of tone, are but part of a general mal-posture which includes, also, the foot and leg conditions mentioned before. In such cases, the list of the body is toward the sound side. This gives additional tension to the already tense pyriformis and to the other muscles connecting the thigh with the trunk on the injured side. The condition is further intensified by the loosening of the posterior bony support at the sacro iliac point. This allows the ilium to sag down and to rest, as in a hammock, upon the muscles passing under the notch between the great trochanter and the vertebral column. These conditions, to my mind, account for a great deal of the backache and bodily tire in postural cases, particularly the foot and leg cases. Relief from such symptoms is often brought about by the application of plates and shoes so adjusted as to throw the weight to the outer border of the foot and rotate the os calcis outward.

I think this result is obtained because the knee and thigh are rotated outward, slacking off the muscles above mentioned, giving them a chance to rest and recuperate, thereby reducing the irritation at the points of bony attachment—below

in the region of the hip and above along the lumbar vertebrae. Consequently, I feel that in children and young adults the mere application of arch plates, shoes, and a few corrective exercises applied to muscles *below* the knee are not sufficient to control the actions of the upper end of the leg lever. Such cases should, after necessary rest and the relief from their pain—if any—be given *corrective exercises for the muscles of the thigh and back* if we wish to permanently benefit them, get physiological as well as mechanical results, reduce their leakage of nerve force from the overwork of such large groups of muscles, raise their efficiency for both the present and the future, and insure their latter years against backaches, neurites, disturbances of function in abdominal and pelvic viscera, and probable arthritic changes.

In a short time I hope to add a further report on these observations and shall appreciate criticisms, suggestions, and reports of cases from fellow investigators.

CHRONIC MALARIAL CACHEXIA AND ITS RELATION TO NEURASTHENOID CONDITIONS.*

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THERE are few physicians indeed, who are not called upon with varying degree of frequency, to treat the acute and chronic manifestations that arise from an infection of the Plasmodium Malariae.

North of that imaginary boundary, the Mason and Dixon line, the condition ordinarily termed "Chronic Malarial Cachexia" is rarely found, and this is to a certain extent true of a few states in the South. Those of us who are engaged in sanatorial work and who receive a good many patients from the far South, come in contact, with a fair degree of frequency, with these manifestations of chronic malarial poisoning, probably more than practitioners in cities farther North.

These patients usually give the clinical history of a severe prolonged or frequent and repeated attacks of malarial infection.

SYMPTOMATOLOGY.

The skin presents a peculiar appearance. In the majority of cases this alone is very suggestive of chronic malarial cachexia. The cutaneous surface is usually sallow, of a rather muddy-saffron hue, dull and at times dusky looking. It is, generally speaking, dry and harsh, cool or even cold and flushes poorly. There is considerable pigmentation. This condition is much accentuated on the face and hands where the skin has been exposed to the action of sun and air. The palms rarely sweat and the skin reacts very slowly to hydrotherapeutic measures. These patients give one the impression of a person who is suffering from some derangement of the adrenal system. The peculiar *facies* so difficult to describe, but so well recognized by the experienced eye, under the generic term "cachexia" is generally present.

With the rarest of exceptions, these patients present a general leanness, in fact *emaciation* would probably better describe the condition. There is muscular weakness, considerable stiffness with aches about the joints and following certain muscular movements, especially of the back. Under palpation and manipulation the muscles feel flabby, convey to the touch of the examiner a denutritional state that is thoroughly in accord with their complaint of weakness and easy fatigability.

Careful personal observations have taught me that there is nothing more unreliable, uncertain and irregular than the *temperature* of these patients. My cases have ranged from markedly sub-normal, normal, up to irregular temperatures of 100 to 102° F. These observations have been based not upon occasional, but upon careful and persistent daily use of an accurate thermometer.

The *circulation* is almost constantly affected. The heart action is rapid, especially on exertion and cardiac murmurs may be present. I have found quite a number of endo-cardial ones and with fair degree of frequency anemic murmurs. The pulse is usually poor, small, compressible, rapid, with a flabby feeling to the arteries. Its rapidity is quickly increased on exertion. *Blood pressure* readings show a general lowering of both the systolic and diastolic pressures. My observation has been that the pulse pressure is usually in the neighborhood of 20. A great many of these cases complain of cardiac oppression, and palpitation is an exceedingly frequent symptom. The cardiac oppression and palpitation, however, is different in degree and character from that found in the *anxiety neurosis*, being less sharply defined, rather more diffuse and much less intense. It is much worse upon exertion. Usually there is no *angst* accompanying the cardiac and precordial manifestations. An edema of the ankles in the evening is a frequent symptom.

The *gastro-intestinal tract* is *always* affected and oftentimes presents a very prominent symptomatology in the case, these symptoms vary in degree but are present in nearly all cases. Undoubtedly this condition adds to the suffering, discomfort and general cachexia of the patient.

The *tongue* is usually pale, flat and broad, flabby, indented and coated with a moist, white covering, greatest at the posterior portion and occasionally tapering to a point at the tip. I have rarely seen red edges, in fact, pinkness is

* Read before the Ohio Valley Medical Association at Evansville, Ind., November 5-6, 1913.

hardly ever present, the tongue presenting somewhat the washed out and partially shriveled appearance of the "washerwoman hands."

The *breath* is usually foul and suggestive of putrefactive changes in the gastro-intestinal tract. It is a condition that harmonizes well with the appearance of the tongue.

The *appetite* is very fickle, irregular and at times peculiar, but a distinct loss of the desire for food and a tendency toward complete anorexia is present.

Gastric digestion may be encompassed under the term weak. Those cases that do not present a hyperesthetic nervous system, will be found showing a diminished amount of the normal acidity, while the hyperesthetic cases are apt to show a hyperacid condition. In both, however, much more especially the hypoacid cases, a great deal of gas is present and the clinical appearance is that of an atonic state.

The *intestinal activity* is very much weakened.

The *abdomen* is usually distended, the patient complaining of pressure and general discomfort. Constipation may alternate with diarrhoea, but the former has in my experience occurred practically in all cases; the latter rarely.

Fatal hemorrhage has been spoken of, by some authors, as occurring in these cases, but I have fortunately never seen a case of this character. The whole type of symptomatology which the gastro-intestinal tract presents in this disorder, is that of a low grade chronic inflammation. All the gastro-intestinal symptoms are much more marked than in neurasthenia.

Physical examination of the abdomen will oftentimes throw diagnostic light upon these cases and where chronic malarial cachexia is suspected, it would be a grave omission, from a diagnostic standpoint, to overlook a careful examination of the abdominal contents. In most of the cases I have seen the spleen has been enlarged. The spleen is usually indurated and may be so greatly enlarged as to be almost massive, although this is a rather rare condition in my experience. Careful percussion, with the patient standing, will show the spleen area of dullness to be considerably increased and palpation may, in some instances aid in the diagnosis. I have found the *liver* as frequently enlarged as the spleen, in fact, the area of the liver dullness has oftentimes been found to be increased as much as the width of two or three fingers and is, I believe a valuable confirmatory sign. The enlargement of liver and spleen together with the presence of gas in the intestinal tract, tends to make the abdomen prominent.

There is a high grade of *anemia* which corresponds with the patients appearance, which as above stated is usually pale and thin. Of the laboratory findings in these cases, we will have more to say later on.

The nervous symptoms are most marked and are neurasthenoid in character. The term *"neurasthenoid"* is employed, as the writer does not believe this to be a true neurasthenia in the strict interpretation of the term as it is employed by neurologists and psychiatrists today, but that it closely resembles the condition is undoubted and therefore the terminology employed. All mental and nervous symptoms are less in degree than in true neurasthenia. All cases complain of more or less general constant *lassitude*, usually worse in the afternoon and evening, with marked disinclination for physical and mental effort. There is a general disinclination to mental effort, depression, irritability and peevishness and general nervousness, much more marked in the latter part of the day than in the early morning.

In certain male, and in nearly all female, cases there are minor *hysteroid* symptoms with a tendency to emotionalism and a "filling" of the eyes or often actual tears. Subjective *vertigo* is present in certain cases, usually past the meridian of life and possibly due to vascular and toxic conditions. *Insomnia* is one of the most marked symptoms we have to deal with and more closely resembles the true neurasthenic insomnia than almost any other symptom. The patient has difficulty in getting to sleep and is restless until sleep comes. The loss of sleep aggravates greatly the patients condition.

It is a rarety to find cases free from *headache*. This is usually of a dull, heavy character, more often frontal. It is usually worse during the day but does not seem to prevent sleep. It is aggravated by intercurrent disturbances of the gastro-intestinal tract. We do not find in these cases, in my observation, the *"brow-ache"* that is commonly ascribed to malarial conditions. Where *neuralgia* is present, we are more likely to find an active malarial process than a cachexia.

LABORATORY FINDINGS.

The laboratory findings are often interesting, although they may not show any findings that are pathognomonic. The *urine* is usually diminished in quantity; has a higher grade of acidity (35-50); there is diminished urea elimination, unless the patient is rapidly losing flesh. There is oftentimes a trace of albumen, urobiligen and indican. The microscope frequently shows casts and cylindroids, which with the presence of albumen constitutes what the French have very aptly called *"la petite Bright's."* There are usually many epithelia, some from the kidney, but the majority from the bladder. In men we frequently find evidence of prostatic irritation. The *blood* should always be carefully studied. Sometimes its appearance microscopically corresponds with the evident high grade of anemia that is nearly always present, for these patients look the part. The hemoglobin runs low, oftentimes 50 or below, while the red cells are greatly reduced in some instances to close around one million. The microscopic study of the fresh drop will show very pale red cells, many of them distorted although one could hardly say that we have to

deal here with a true poikilocytosis. Oftentimes granules of pigment are found floating in the blood, but more often in the white blood cells. This observation was first made by Manson, of the British Indian Medical Service, and since the publication of his interesting paper, we have looked constantly and searched persistently the blood of these patients for this pigmentation. Lately Wade Brown has shown that the pigment elaborated from the hemoglobin of the red cells by the malarial parasite is hematin. He injected this pigment into the circulation of rabbits and produced a series of phenomena strikingly like a true malarial paroxysm in man. It would seem from this that hematin was the cause of the paroxysm.

We have not found the malarial parasite in the blood with any degree of frequency. Where it has been discovered there have been, as a rule, some acute manifestations engrafted upon the cachexic state. We have often called in question this failure although the blood has been studied under many conditions in the hopes that they would be found.

The *gastric analysis* usually reveals either a decrease or an increase of the acid content, which, as we have said before, we believe to be due to the question as to whether we are dealing with a hyper- or hypo-esthetic nervous system; in the former we would expect to find a hyper, in the latter a hypo-acid condition. A good many cases have a complicating gastritis of low grade, which may, as we well know, accompany either a hyper or a hypo state.

It may not be amiss to state that since the introduction of serological methods, the cases that form the basis of this clinical study have been subjected to a careful investigation along these lines, employing the methods of Noguchi and Weil (Cobra Venom Test) in order that there might be no question as to a syphilitic taint.

DIFFERENTIAL DIAGNOSIS.

The frequency with which these cases are labelled neurasthenia, has led me to be very careful in their separation. The tendency to tag all cases of whatever nature that seem to be generally run down, that have a number of functional (?) nervous symptoms cannot be too heartily condemned. While these cases have many mental and nervous symptoms due to the toxemia of the malarial poisoning, they are not, in the modern conception of the true neurosis, neurasthenic. Neurasthenia as limited today by recent investigation, is an entity (pressure in the head, spinal irritation, dyspepsia with flatulence and constipation, paresthesiae, diminished potency and emotional depression) that the neurologist recognizes as due to conditions other than toxemia. In fact the very careful separation of the true neurosis of neurasthenia and anxiety-neurosis from the many pseudo-neurasthenias that arise from irregularities of the internal secretions, from the various toxemias and other causes, is one that requires no little diagnostic acumen. To have at hand a capacious waste basket into which we may drop our difficult diagnostic problems is undoubtedly an easy solution of the case in hand, but the patient is in the unfortunate predicament of the cat, who is swung by the tail in a room of small proportions. Comfort, at least, is not with the cat. We believe that close *observation alone* would in many of these cases lead the physician to *suspect* what might be the underlying *causus morbi*. Nor should he forget to eliminate hypertrophic hepatitis, Bantis Disease, etc., and any other general or abdominal disease or disorder, merely because of the deceptive appearance of a group of functional (?) nervous symptoms.

DIFFERENTIAL DIAGNOSIS.

MALARIAL CACHEXIA.	NEURASTHENIA.
Skin: Sallow, muddy, dry, harsh.	*Skin:* May be clear, pale, ruddy, flushed, moist.
Palms: Rarely ever sweat.	*Palms:* Commonly sweat.
Skin reaction: Very sluggish.	*Skin reaction:* Very active.
Emaciation: Muscular flabbiness and genuine weakness.	*Emaciation:* Absent. May be fat, muscles and tissues firm, weakness neural rather than physical.
Temperature: Variable.	*Temperature:* Variable.
Heart: Murmurs frequent.	*Heart:* No murmurs.
Pulse: Rapid, small compressible.	*Pulse:* Variable, may be large.
Blood pressure: Lowered.	*Blood pressure:* Variable.
Gastro-intestinal symptoms: Resemble each other but more marked and definite.	*Gastro-intestinal symptoms:* Less definitely marked.
Abdomen: Protuberant, distended.	*Abdomen:* Negative. Ptosis occasionally.
Spleen: Enlarged.	*Spleen:* Not enlarged.
Liver: Enlarged.	*Liver:* Not enlarged.
Anemia: Always present and of severe grade.	*Anemia:* May be present: relatively moderate.
Mental symptoms: Same in both, but less in degree.	*Mental symptoms:* Same in both.
Nervous symptoms: Same in both, but less in degree.	*Nervous symptoms:* Same in both, but greater in degree.
Blood: Pigment: pigmented white cells.	*Blood:* None.
Urine: Petite Bright's present.	*Urine:* Petite Bright's absent.

Recapitulating we may remark that:

1. The symptoms in true neurasthenia, are as a rule, worse in the morning instead of the afternoon; are more of the fatigue and irritative type and more intense than are present in chronic malarial cachexia.

2. The abdominal symptoms enumerated above: these are rarely found in cases of true neurasthenia.

3. The *cachexial* appearance, color and reaction of the skin; an emaciation that is suggestive.

4. The laboratory findings.

TREATMENT.

The success that we have attained in the treatment of these cases has been one of the incen-

tives to the publication of this clinical study. The cases have nearly all been hospital ones, under absolute control as regards their hygiene, diet, rest and the following out of the treatment laid down for the particular case in hand. We mention this as we believe that *hospital* or *sanatorial* treatment and absolute control of the patient are essential for the complete relief of these patients and their return to normal activity. About ninety per cent. were ambulatory, the remainder bed-ridden when the cases came under our observation and treatment. The first step was to lay down hygienic rules as regarded their lives, clothing, rest, exercise, etc. In general they led regular and restricted lives, securing a great deal of rest and especially resting for an hour or longer following the various treatments employed. Weak cases were given modified "rest cure" methods. In all instances, the patients were fed as we would feed them for intense anemia and a low nutritional state, in other words the diet was as fully nutritious and varied as much as possible in order to induce the full consumption of food that the gastro-intestinal organs could take care of, with the aid of gastro-motor tonics and digestants. The endeavor was to increase the quantity and quality of the blood and put fat upon those who were both "lean and hungry;" those who were bed-ridden were treated in bed until able to get up, at which time graduated exercise and a slow resumption of activity was followed out.

During the treatment we have had *acute* malarial attacks to occur, in fact, we are positive that attacks have been brought on by forcible concussion of the twelfth dorsal and first, second and third lumbar vertebrae, by a *very powerful jet douche*. Clinically speaking, we feel that the concussion of these vertebrae produced a contraction of the spleen with a consequent liberation of the malarial organisms and a resulting attack. In several cases we have noticed a malarial attack follow the concussion (mechanically) of these vertebrae and believe that the mechanism of its production is as above stated. If an acute attack supervenes, it should be treated as such without regard to the treatment of the cachexia.

PHYSIO-THERAPEUTIC METHODS.

Massage, both manual and mechanical, is very valuable in the management of these cases, owing to its general tonic effect and its influence upon the nervous circulatory and eliminative organs. As has been known for many years, massage and vibration are reconstructive, largely through their influence upon nutrition and through metabolic changes in the organism. That it has a beneficial influence in these cases can be very readily shown, where we have utilized it as the *sole* mechanical or physio-therapeutic remedy in conjunction with dietetic and hygienic control.

We use *electrotherapy* in these cases: it is an adjuvant but possesses no specific value; is useful in the treatment of certain local manifestations, especially the digestive disturbances and the constipation. Of course, in improving the functional activity of the gastro-intestinal tract and bettering its evacuation, it becomes a contributing factor in the general up-building of the patient. Those currents best suited for these cases are the *galvanic*, using large enough pads to cover both spleen and liver; the *sinusoidal* for its muscular effects upon the intestine and the *static* wave current, per rectum and over the liver and spleen.

Hydrotherapy, we believe to possess a specific influence in this disorder and the results obtained by its use have been such as to lead us clinically to depend upon it as the main weapon in the combat of these cachectic states.

Two classes of cases demand treatment: the bedridden and the ambulatory.

Where the case is bed-ridden, we commence the treatment with a cold sponge at 60-50° F., using a crash glove and secure reaction by vigorous rubbing with a crash towel. As soon as the patient's reaction is well established, we use the dripping sheet at 60-50° F. rapidly applied with good friction once or twice daily. The details of this and subsequently described methods, I have given fully elsewhere.* As soon as the case is up and about, the ambulatory method is employed.

Should a chill develop, the method usually employed is to order hot drinks of either plain or flavored water, lemonade, etc., with hot water bottles to the feet and surrounding the patient or the hot full bath at 102-104° F. for ten to fifteen minutes, followed by rapid drying and lying between blankets; these will give much comfort and shorten the attack. With the subsidence of the chill, we usually wait one hour and if there is no sweating and the temperature begins to rise, we allow the patient to drink freely of cold water and order the cold sponge at 60-50° F. applied singly to an extremity, then to the back and finally to the chest and abdomen, being careful to dry each part as soon as it is sponged and to use a crash mitten or rag in order to produce sufficient friction to dilate the surface capillaries. If, however, the patient should be sweating the parts must first be thoroughly dried after which they are rapidly sponged with very hot water (110-115° F.) the mitten or rag being squeezed dry before being used for the sponging. Each part must be dried and immediately returned to the cover.

If it is believed that a chill is approaching and it is desired to *abort* the attack, the patient should be given large quantities of hot water internally and the hot full bath at 102-104° F. for ten to fifteen minutes and kept warm until the threatened attack has passed.

As soon as the bed-ridden cases are able to get about and for the ordinary ambulatory cases, we employ the following method:

*Practical Hydrotherapy. Cincinnati Medical Book Co.

1. *A hot procedure to perspiration.* For this purpose we can employ the hot full wet pack, the full dry pack, the vapor, hot air, superheated dry hot air or incandescent electric light bath; the latter is undoubtedly, and by far, the best heat measure in such cases, as it acts not only as a provoker of perspiration, but accomplishes this and at the same time stimulates the patient.

2. *A preliminary warm application.* This may be a sponge, the dripping sheet, the hot half bath, full bath, shower, rain, needle, spray or douche.

3. *A cold application.* This may be likewise a sponge, dripping sheet, cold half bath, affusion, shower, rain, needle, spray or douche.

The best all-round combination for ambulatory cases with this disorder, is as follows:—Incandescent electric light bath to moderate or free perspiration, according to the strength of the individual; the needle, rain or shower bath at 102-104° F. for one or two minutes reduced to 60-50° F. for one-fourth minute under twenty to twenty-five pounds pressure, followed by the Scottish jet douche to the spine, (10th dorsal to 4th lumbar) and over the liver and spleen at 105° F. or more under twenty pound pressure reduced to 60° F.,; the alternation should be hot douche one-half minute alternated with the cold douche for ten seconds, three to four alternations.

Following each application, the patient should be thoroughly rubbed and a reaction secured. By reaction we mean the pleasant glow, pinking of the skin and tonic state of the circulation that directly results from the manifold reflexes, etc., that follow the cold application. It is advantageous for the patient to rest quietly after the treatment and to be instructed to drink eight to ten glasses of cold water daily.

MEDICINAL THERAPY.

Most of these cases that come under our professional care have been dosed to death with medicine; have taken calomel, quinine, arsenic, and many other drugs in varying forms and for long periods of time. From our personal experience we would say that very few drugs are of advantage in these cases and that most of them are best employed by the hypodermic method. The first group consists of iron, arsenic and quinine. We prefer to administer iron and arsenic hypodermically daily and believe that there is a certain advantage in giving it in the morning before the hydrotherapeutic measures, as we believe that these favor its better distribution and action, in fact, we are inclined to believe, from clinical observation, that nearly all drugs can be given in smaller doses with better effect and surer physiologic action where hydrotherapy is employed. We believe that iron and arsenic is better in the cachexia than quinine. Where an acute attack is threatened or where one has taken place the hypodermic administration of quinia bi-sulphate in from two to four grain doses will oftentimes spare the patient the nerve racking influence of large doses by the mouth and at the same time be far more effective when given in this way. It is astonishing sometime the beneficial results that come from its use. The other group are the fats of which cod-liver-oil, Sevetol, Russell's Emulsion, butter, olive oil, mayonnaise and a host of other emulsions may be employed. In this connection, it must not be forgotten that real rich milk and cream can often take the place of emulsions.

METHOD.

The methods here enumerated, are as a rule worked into a "system" for each individual case, that is to say the hygienic rules that are to govern the patient are first laid down and explained. The diet is then arranged, the rest prescribed and such medicinal measures as are deemed wise given. The day is divided up so that certain local or special treatments, to meet certain lesions or conditions, such as headache, insomnia, splenic and hepatic enlargements, gastro-intestinal disturbances, etc., and the hypodermics of the drugs used and suggested, given. In the mid-day the hydrotherapy and in the afternoon or evening the massage. In this way we are able to meet many conditions that are clinically indicated in the particular case in hand.

AIM OF TREATMENT.

It will thus be seen that the aim of treatment, as herein outlined, is to:

1. Increase the general neural and vital resistance.
2. Increase the hemoglobin, corpuscular richness and leucocytal activity of the blood, thus overcoming the anemia.
3. To destroy the parasites, at any time should they be present or become active.
4. To increase the elimination of toxins.
5. To stimulate normal metabolic changes.
6. To overcome the neurasthenoid state.

RESULTS.

We have had to deal with quite a large number of these cases and the remarkable success that has attended the method herein outlined has led to the publication of this paper. These patients must be carefully handled and persistently treated. Their cases require time, care and attention, but where this is persisted in brilliant results follow.

It has seemed to us that there are a certain number of cases that seem to possess a peculiar sensitiveness to the malarial poisoning and who have a tendency to develop the cachexia. To these people we advise removal and residence in a non-malarial district and that if this is not sufficient that they be given iron, quinine and arsenic hypodermically and that they take hydrotherapeutic treatment for a number of months until the tendency is entirely eradicated.

A STUDY OF CANCER.—BY SEELYE W. LITTLE, M.D., ROCHESTER, N. Y.

(*Concluded from page 166.*)

TABLE I.

Tissues derived from different germ layers.

ECTODERM.	MESODERM.	ENDODERM.
Entire nervous system.	Blood vessels (except lining endothelium).	*Epithelium* of entire alimentary tract (except anus and part of mouth) and of all glands opening into alimentary canal.
Epidermis.	Bones.	
Hair.	Muscles	*Epithelium* of eustachian tube and tympanic cavity, of trachea and of entire lung apparatus.
Nails.	Connective tissue.	
Enamel of teeth.	Spleen.	*Epithelium* of bladder and urethra.
Epithelium lining. Sebaceous. Sweat. Mammary. } Glands.	Generative and urinary organs (except lining epithelium of bladder and urethra).	*Endothelium* of heart blood vessels and serous cavities.
Epithelium lining nose and part of mouth and pharynx (all mouth in front of pharynx except tongue which is of *endo*dermic origin. That part of pharynx left as remnant of ant. lobe of pituitary is of ectodermic origin).	(Fat probably transformed connective tissue cells,—first appearing in embryo about fourteenth week).	

TABLE II.

Derivation (embryologically) of "ductless glands."

ECTODERM.	MESODERM.	ENDODERM.
Ad renal portion of suprarenals (*that is, the medullary part*).	*Inter*renal portion of suprarenals (*that is, cortex*).	Thymus.
Pituitary body.		Thyroid.
Carotid body.		Parathyroids.
Coccygeal body. ?	Coccygeal body (*probably from medial sacral artery*).	Pancreas, Islands of Langerhans (epithelial origin).
Pineal body.	Testicles (Leydig's cells).	
	Ovaries.	
	Corpus luteum (*epithelial*).	Gastric and intestinal mucosa.
	Interstitial cells (*connective tissue*).	

TABLE III.

Cancer of *mesodermic* tissue occurs only in:
- Generative and urinary organs (except lining membrane of bladder and urethra which are endoderm).
- 18% of all cancers.

Cancer of *endodermic* tissue occurs only in:
- Entire digestive tract with all glands opening into it (except anus and mouth).
- Entire respiratory tract.
- Eustachian tube and tympanic cavity
- Epithelium of bladder and urethra.
- Endothelium of heart, blood vessels and serous cavities.
- 64% of all cancers.

Cancer of *ectodermic* tissue occurs only in:
- Entire nervous system.
- Entire epidermis (including hair, nails and enamel of teeth).
- Epithelium of sebaceous, sweat and mammary glands.
- Epithelium of nose and mouth (except tongue—endo).
- 19% of all cancers.

(Above percentage is from *classified* cancer deaths in New York State for first six months of 1913. There were besides 754 unspecified cancers. Over 8000 per year.)
Above percentages are approximate

TABLE IV.

Six Months' Cancer Deaths in New York. Unspecified.	ECTODERM. (Skin, mouth, breast.)	MESODERM. (Fem. Genital Organs.)	ENDODERM. (Stomach and liver, peritoneum, intestines and rectum.)
1913			
	19		252
	26		116
June 117	58—103	111	—368
	20		255
	16		84
May 130	57— 93	94	—339
	21		300
	21		108
April 128	70—112	113	—408
	19		280
	33		84
Mar. 112	70—122	95	—364
	17		253
	17		98
Feb. 119	75—109	108	—351
	21		300
	23		90
Jan. 148	62—106	97	—390
754	645	618	2220

TABLE V.

Ductless glands presumably mainly at fault in cancer of *mesodermic tissues:*

Derived from *mesoderm.*
- Cortex of suprarenals.
- Leydig's cells of testicles.
- Ovaries.

Ductless glands presumably mainly at fault in cancer of *ectodermic tissues:*

Derived from *ectoderm.*
- Medulla of suprarenals.
- Pituitary body.
- Pineal body.

Ductless glands presumably mainly at fault in cancer of *endodermic tissues:*

Derived from *endoderm.*
- Thymus (in young).
- Thyroid.
- Parathyroids.
- Pancreas (Islands of Langerhans).

TABLE VI.

Conditions often producing hyperglycemia and glycosuria.

Hyposecretion.
- Islands of Langerhans (except in cancer?).
- Parathyroid?

Hypersecretion.
- Suprarenals.
- Thyroid.
- Pituitary.

TABLE VII.

Tolerance for sugar without glycosuria.

Hyposecretion.
- Pituitary. } Ectoderm.
- Sprarenals (medulla). } Ectoderm.
- Suprarenals (cortex). } Mesoderm.
- Ovaries and testicles. } Mesoderm.
- Thyroids. } Endoderm.
- Parathyroids. } Endoderm.
- Islands of Langerhans (in cancer?). } Endoderm.

It is interesting to notice, counting the thyroid and the parathyroid as one system, that for each blastodermic layer there are two ductless glands one or both of which may be at fault in producing the characteristic tolerance for sugar in cancer patients.

THE CASE FOR RADIUM THERAPY.

BY SAMUEL DELANO, M.D., BOSTON.

(*Concluded from page* 163.)

II. EMANATION.

Internal Use. As we have seen, a radium salt depends for its rayage upon the formation of the emanation and further splitting of this into its chain of decay products, Radium A., B. and C. Emanation, in its subtlety and tenuity almost deserves the name of aura or atmosphere. It is, however, a noble gas, obeys all the laws of gases, but is inert—not affected by chemical agents. An idea of its want of bulk may be gained from Soddy's comparisons. The quantity given off by 30 mgms. of radium would still have to be multiplied by 30 to amount to a bubble of a pin's head size. One billionth of a mgm. of emanation may be recognized with ease, and measured. Nevertheless, it may be manipulated and captured by a mechanism. It can be drawn through capillary tubes, liquefied by liquid air, released again into a vapor in a vacuum and finally forced into a capillary tube by a mercury pump. By means of this imprisonment it may be used for radiation purposes and, bulk for bulk, has vastly more strength than the radium salt itself.

In the tube, however, it cannot do one thing that it can when free, viz., cause radio-activity in other objects; when free, emanation in the most minute quantity will, by its splitting into decay products, produce what is called induced radio-activity—a condition which is dependent upon the emanation precipitating its secondary deposit (Radium A., B. and C.). While emanation itself is a gas and has no chemistry; the secondary deposit is metallic in nature, and though impalpable, may be removed by acids, heat, or even sandpaper (in which case the sandpaper becomes radio-active!).

Emanation, through its powers to ionize gases, is just as good a measure of the activity of radium, qualitatively and quantitatively, as are the rays through the evidence of, the photographic plate, the burn, the phosphorescent screen and the ionization. The secondary deposit, of course, furnishes rays by passing (at various distances of time (minutes) through the decay series Radium A., B. and C. Thus a frog killed by exposure to the emanation will photograph itself.

Perhaps nothing better expresses the ubiquity of radio-activity (emanation) than the Biblical phrase, "In the heavens above, in the earth beneath and in the waters under the earth." Gushing from the earth we have the radio-active waters of the so-called neutral springs, the *wildbäder*, with their powers renowned for centuries. We have the radio-activity of the soil, the atmosphere and the sea water, and in the heavens we know, at least, of the presence of Helium (identical with Alpha particles) in the sun, while the fresh fallen rain and snow are radio-active.

Emanation is toxic to animals, and destructive to vegetable life, but non-toxic to man, and a healthy individual is not affected by a dose to which disease reacts. Thus emanation kills the germs of plants, shrivels leaves, destroys hair, nails, ovary, testicle, coagulates albumen of egg, discolorizes the yolk (destruction of lecithin), but it wields many other influences that evidently cut a large figure in its therapeutic quantivalence.

By its mere presence emanation proves itself possessed of catalytic powers, *i.e.* capacity to start or intensify reaction between two other agents. Thus:—

Air and emanation in a tube—the product is nitrous oxide. (Cf. the synthetic production of nitre from the atmosphere by electricity.)

Oxygen and emanation—the product is ozone

Iodoform and emanation—iodine.

All the various fermentations are actively goaded along *in vitro* by emanation—gastric and pancreatic, glycolytic and diastatic, lactic and yeast. It also stimulates autolysis. Of two pieces of cancer tissue in water, the one exposed to radium emanation decays seven times quicker than the other.

But the activity of ferments in nature's laboratory must be much greater than in a test tube; *cf.* the rapid synthesis of proteids from the food. Therefore a much smaller amount of chemical energy is necessary in the body. Hence the entire naturalness of the conception of small quantities of emanation as an active agent. In this connection, compare the fact that one microgram of adrenalin will affect blood pressure. Every process concerned in metabolism in the body must have its specific ferment. Emanation may be looked upon as a strong (general) ferment. Entering the blood it may be absorbed by the colloids (as it is by charcoal); the secondary deposit (metallic) forms a metallic colloid solution analogous to the colloid solution of the metals. This activates the blood, and in consequence all processes of the body are activated.

Prof. Hertwig finds that the blood and lymph cells and the hematopoietic organs are especially affected by radio-activity. Horsely finds that in the nervous system changes are mostly vascular.

Emanation—How Taken? Emanation may be introduced into the system either by drinking water containing emanation, by inhaling the emanation, by bathing in water containing emanation, or by injection.

When inhaled, much immediately returns with exhalation; it is desirable, therefore, to reduce the cubic space, that the emanation may be rebreathed. Taken into the stomach, a good portion escapes via the portal system, right side of heart and lungs. In a bath the process is again one of inhalation largely—there being consider-

able dispute as to whether there is even a small absorption by skin. By injection intravenously the whole amount gets placed.

It is figured by Lazarus that only one-tenth of the inhalation dose is effective, nine-tenths being lost. The blood can be proven radio-active in a few minutes, and with the usual dose all emanation has disappeared from the system in from two to four hours.

The half period of emanation is 3.8 days, *i.e.* in that time half of it has decayed—after that the process goes on in geometrical ratio till a finality is reached in thirty days.

In the case of radio-active water, as *e.g.* from springs (or water made radio-active by contact with an insoluble radium salt) a rapid loss in emanation is the rule, if it has to be handled or transported. Thus most bottled spring waters are decidedly weak.

But if there be radium in solution, the storing up of emanation follows according to a specific law. If radium is dissolved, the rapidity of the formation of emanation increases in rate. At first the decay is in excess of the evolution of the gas, but gradually the amount evolved catches up, till in a month the amount formed is in equilibrium with the amount split up (decay); from this point on this balance is maintained.

Physiological Action. Naturally the action of emanation could be most readily and accurately studied in respect to its effect on metabolism and on the blood.

1. It increases the excretion of uric acid. An amount of .1 gm. *pro die* can be increased to 1 gm. It ensures uric acid's keeping its soluble form in the blood and thus prevents its precipitation. It promotes the absorption of that already deposited. It increases the secretion of urea and promotes metabolism, increases the respiratory quotient, increases amount of carbonic acid excreted.

It diminishes the viscosity of the blood through the improvement of metabolism and the diminished saturation of the blood with diverse material.

It produces a dilation of blood vessels through the excitation of vaso motor nerves.

Through the influence of the last two factors it effects a lowering of blood pressure, even as much as 20-30 mm. of mercury.

It improves digestive processes by activating ferments and stimulates the whole digestive tract by acting on the nerves of the intestines.

It produces diuresis.

It is a rapid tonic, showing its effect in a renewed vigor and *bien aise,* and in an increased body weight and appetite.

By it the blood is modified as to its constitution. A small dose (of a few thousand Maché units) will cause a hypoleucocytosis, but the diminution of leucocytes will not be permanent beyond a certain point. Sometimes there is a hyperleucocytosis (v. Noorden).

After an injection of radium the red corpuscles are found to increase at an astonishing rate, thus from 5,400,000 to 7,200,000 in half an hour and up to 13,000,000 in seven days.

Therapeutics. The scientific application of emanation to therapeutics has a very decided historical basis of support in the centuries-old fame of certain springs that have since been shown to depend for their virtues on the presence of radium emanation. Even among the mines it was known that workers did not have rheumatism, pitchblende sewed in a sack was a popular cure for headache, and the water a remedy for constipation. The red men in America worshipped the "spirit of the springs" and erected huts about them.

The reputation of the springs converged more particularly on gout and rheumatism, but left room, perhaps not less, for general effects on the system and for the repair of senility and sexual decline.

Since the responsibility for the cures has been laid at the doors of radium, the manner of using the water and emanation has been systematized to a point of high development, and as an outgrowth, clinics for the use of the emanation have been established in innumerable centres. This extension has enlisted the services of many gifted clinicians, so that in the six or eight years past much data has accumulated and results have been authenticated. The names of Gudzent, His, Falta and v. Noorden, v. Neisser, Klemperer, Lazarus, et al., form a galaxy, the brilliancy of which should leave no doubt in our minds of great results secured with radium emanation.

There need at least no doubt attach to the remarkable control of radium over gout and rheumatism, in its very varied manifestations. And it is to be remembered that here radium has been offered the task of conquering conditions that correspond rather well to the inoperable cancer. Rheumatoid arthritis, *e.g.* is a well nigh hopeless disease so far as other therapy is concerned, but many remarkable successes have crowned the use of radium. And so with other chronic joints and arthritises, with the exception of luetic and tubercular.

The nearer the joint is to the subacute stage, the more promise of success, especially if it is at the stage of effusion and periarticular edema; but very chronic joints will show vast improvement, if they have not passed into the stage of absorbed cartilage and organized fibrous tissue. "Before experience," says Klemperer, "I expressed myself as very skeptical of the reported successes of others, but now I can say that radium scores such success as does no other therapeutic measure, in rheumatism." Prof. Falta uses the emanation in acute cases even, and says it is to be preferred to the salicylates.

In gout and rheumatism a curious feature comes to light, viz., the reaction, *i.e.* what might be called the "touching up" through the radium; pain, swelling, fever appear or are emphasized. This must be looked for if doses of any size are used, and indeed it offers the means of "taking

the measure" of a patient. Appearing, it is distinctly favorable in a prognostic light. On account of it, occasionally the treatment has to be interrupted; it appears at a variable time, two days to three weeks. Another phenomenon, "late or postponed healing," was well known in the old days of the springs, before radium saw the light. It has to do probably with the presence in the body of the later members in the decay series — Radium D.-F. — which take months for splitting and the liberation of energy.

The action of radium on rheumatism may perhaps be referred to its bactericidal action, radium having a destructive effect on staphylococci and especially on gonococci (the emanation is especially effective in gonorrheal rheumatism), but its influence over metabolism, its autolytic and antiphlogistic action are not to be forgotten.

In muscular rheumatism and inflammatory conditions of muscle and fibrous tissue emanation acts favorably. A lumbago is relieved by a few doses.

In many nervous diseases emanation has been found very valuable. In all neuralgias connected with neuritis or with metabolism or having a uric acid, gouty, or diabetic foundation, radium emanation is a specific. In tabes, Wachsmann found only four out of nineteen cases not benefited as to pains, while, too, the crises were relieved.

In catarrh of the antrum and frontal sinuses Pick has reported remarkable improvement. So in chronic inflammatory conditions in general, as in the pelvis or the myocardium.

There is no doubt that radium emanation has a well defined soporific influence. This has been emphasized by many observers. It may, perhaps, be ascribed to its influence in widening the blood channels.

To the latter effect may be attributed its control of blood pressure. This ischaemic reaction makes it useful in vaso motor disturbances and constrictive states. In this line comes arteriosclerosis, for which the springs in earlier years had especial repute.

Because of increasing the red corpuscles and its pronounced tonic effect in general, emanation acts highly favorably in simple anemias. Cases, too, of pernicious anemias have been reported cured (one recently by Gudzent, although he intimates a relapse as quite possible).

In diabetes, where it has been much used, observations differ. No doubt its effect seems to reach the proportions of a cure in early cases in younger patients. If diabetes is caused by a deficiency or insufficiency of glycolytic ferments (and glycolytic ferments are well borne by diabetics) the coefficiency of emanation in glycolysis ought to be a factor of benefit. Sanbermann is enthusiastic over results in diabetes, and believes that failures are due to small doses (mentions as low as 10-100 M.U.). Mayer and Eichhorst have reported good results.

As a rejuvenator in senility and sexual decline, v. Noorden is especially friendly to radium; and before radium the baths were much resorted to for such influences.

Emanation certainly corrects many conditions of digestion, as intestinal fermentation; it is also laxative and a remedy for constipation.

Practical Use of Emanation. 1. By inhalation, emanation may be introduced into the system if the patient remains in a room the air of which is heavily charged with the gas. To this end large and costly emanatoria have been erected in connection with radio-active springs, with a reduced cubic space, appliances that care for the oxygen supply and the removal of carbonic acid and moisture (the patients are even electrically (neg.) charged to increase the amount of active deposit collecting on them); a further advantage of such an establishment is that every object about the buildings increases the total radio-activity, having acquired an induced radio-activity through the precipitation of secondary deposit.

2. Advantage may be taken of the law that dissolving a radium salt increases the liberation of emanation. The solution is aged until the emanation is in equilibrium with the radium, after which time the amount of emanation is constant and may be continuously used for inhalation—a current of (washed) air or oxygen being forced through the container and conducted out to be inhaled by any number of patients. This is the most appropriate form for a home-made emanatorium. The amount of radium should be perhaps 2 or 3 mgms. to each individual.

3. An individual inhaler may be arranged and installed in a small cabinet or booth. Here advantage might be taken of the law that, if heated, radium gives off its emanation more rapidly. Thus the solution of the radium salt may be boiled, the steam conducted into a container where, the steam being condensed, the emanation is left, to be inhaled.

4. Emanation by the bath resolves itself into emanation by inhalation. There is a small amount of absorption by the skin (Lazarus), though this point is vigorously disputed. A bath may be made radio-active by introducing an insoluble radium salt or residues containing radium. But it is far better (though more expensive) to add a solution of a radium salt, in which the maximum quantity of emanation has been developed by aging. The escaping emanation is to be inhaled, and to this end the cubic space of atmosphere should be made as small as possible. The active deposit on the body should not be wiped off.

5. Emanation *per os* may be in the form of water made artificially radio-active by contact with an insoluble radium salt. But this water is unstable, and the amount of emanation weakens rapidly. Hence it is far better and more dependable (but costlier) to age a solution of a

radium salt,—get the maximum quantity of emanation and make the dose certain.

Radium by Injection. A soluble salt of radium has been introduced into the system intravenously, in pretty large doses, even up to 1 mgm. The usual dose, however, has been 50-100 micrograms. It may be looked upon as the method of securing intensive or quick action. It offers, however, the advantages of slow radiation because a part of the radium is stored up as the insoluble sulphate in the bone marrow, where its slow and gradual decay makes possible a large and continued radiation of the system. No injurious effects have been noted from this sudden lodging of considerable amounts of radium within the system. The intravenous method has been recommended in anemias, but especially the pernicious form, in general arthritis, and in high blood pressure (which it will immediately reduce).

v. Noorden uses a weak solution (1 mmgm.) in the neighborhood of all joints affected by rheumatism; Czerny uses radio-active salt solution (contact with insoluble salts). Domenichi has injected 50-60 mmgms. into joint, drawing fluid off if necessary, with immediate relief of pain and marked improvement within five or six days. In eight cases of anemia, Ledoux-Lebarde has injected 20 mmgms. per week, with distinct improvement.

Czerny makes injections of insoluble salts into tumors—in this case the resorption of the radium is years in completing itself. Uranium oxide gr. xx-℥i in oil has been injected into the fistulous openings of secondary carcinoma, with healing of the case. Tuberculous fistulae discharging pus have been treated successfully with injections of radiferous water.

Radium Compresses. Fine linen mesh with an insoluble radium salt incorporated (*toile*) is used by the French for radiation purposes. If the amount of radium is large it will gradually destroy the fabric by making it fragile. For this a recent substitution of insoluble salts in asbestos has been proposed.

A small amount of a radium salt or a radium-bearing earth can be imprisoned in gauze and forms a very useful application after wetting. v. Noorden makes this application to all rheumatic joints—scrofulous glands have been so treated. Lazarus calls attention to the fact that most compresses on the market are weak. Gauze soaked in radiferous water makes a good application and may be used for dressing ulcerated surfaces, especially malignant. In tuberculosis both pulmonary and intestinal compresses have been used with marked effect. Eichholtz utilizes clysters of emanation water (the emanation is absorbed and excreted by lungs).

Radio-active Earth. Pitchblende residues have always been much used—even before their radium wealth was known. Sewed in a bag it was a remedy for headache.

Pitchblende is applied in ointment form to psoriasis. Even at this date Arendt prefers, for radiation of uterine cancer, pitchblende residue in a rubber finger cot and reports cases of cure (he prefers the slow radiation of the pitchblende, but also uses radium itself). Radio-active earth occurs naturally, as the well known Fango, found in Italy. With this, packs and local applications are made. So as a residue in mining, radio-active earth is left and contains a considerable per cent. of radium. This makes a most useful application. Mixed with boiling water to a paste, it is spread between gauze and used as a poultice; thus Christides reports a clinic of fifteen cases of pelvic inflammatory conditions in which the earth produced much improvement. It has also been used freely by the French, stirred up in a sitz bath or as a vaginal injection.

As to the theory of local action, we must look to the autolytic or anti-inflammatory action of the small amount of radium. London has reported an ulcer of the arm from radio-active cotton. And action on the terminal nerve filaments suggests itself.

Radium by Cataphoresis. Both the emanation and the active deposit collect on the negative pole—a person charged with negative electricity will gather a greater quantity of active deposit, when in contact with emanation. Knox has charged agar-agar plates with emanation, placed them on surface of a growth and produced a deeper penetration by ionization. This field seems to offer much chance of development. Knox suggests that later we may find substances which, when taken internally, may be made radio-active from the outside.

Thorium-x. Thorium emanation does not spring directly from mesothorium as radium emanation does from a radium salt, but is reached only after the interposition of the intermediate decay products radiothorium—thorium-x. The thorium emanation is given off by this last, and unlike radium emanation, is rare in nature. Strangely enough, however, it was used in medicine before radium emanation, for inhalation in tuberculosis.

Thorium emanation has a very short life, 54 seconds, about the duration of the blood cyclosis, therefore it is in practice not considered directly available for therapeutic purposes. Both Bickel and Lazarus deny that it can be detected in the blood after inhalation. On the contrary, Georgés has reported a clinic with its use, and favorable results after a year's experience.

Thorium-x, however, is a substance which, in solution, may be taken *per os* or introduced intravenously. It supplies a method of radiating the system, the body acting as an emanator, and the nascent emanation being liberated within the system.

But this brings up certain very important differences from the emanation of radium. Sixty-five per cent. of thorium-x can be recovered in the bone marrow and eighty per cent. of the emanation is retained within the body. It is, besides, excreted especially by the intestine.

There is thus the opportunity furnished, in the use of thorium-x, for a very intense radiation, likewise for a very slow and prolonged one. Radium emanation makes a quick passage of the cells because the active deposit (Radium A., B. and C.) takes only minutes in breaking up, while thorium emanation makes a slow passage because the decay products are days in breaking up.

The meaning of this is that thorium-x is intense and cumulative, where radium emanation is not. It may be said then that the activating therapeutic dose of thorium-x is much nearer the destructive toxic dose and that in working with it one is always along the edge of the precipice.

Very high doses of thorium-x have been used (stated as high as 3,000,000 M.U.) but deaths have been reported with hemorrhages into the bowel and internal organs, and a large number of observers warn against its dangers. Thus Georgés in using the emanation and contending (against the opinion of others) that results were highly satisfactory, bases his support of it on its lack of danger, in contrast with the great danger in use of thorium-x. Ledoux-Lebarde and Meseth, both users of it, advise great caution.

The great intensity of thorium-x makes for temptation in the wish to see immediate results. Thus in leukemias the white corpuscles can be enormously reduced in a few days even to nil, it is said (as also in animals, experimentally); and in the same way the red corpuscles can be extravagantly increased in pernicious anemias, but the same thing can be accomplished by radium in more deliberate fashion, and in a perfectly safe way. In a recent clinic, Gudzent, the foremost authority on emanation, in a comparison of radium emanation and thorium-x in gout and rheumatism, reports more favorably on radium and includes a case of pernicious anemia apparently healed by the radium.

Radium emanation, so entirely unique, seems then to offer an extensive addition to our therapeutic resources, and no better doxology could be made for it than that it fulfils the great requisite of *primum ne nocere*.

Clinical Department.

A FATAL CASE OF ENDOCARDITIS DUE TO A GRAM-STAINING FILAMENTOUS ORGANISM.

BY WILLIAM H. SMITH, M.D., BOSTON,

AND

OSCAR RICHARDSON, M.D., BOSTON.

A chauffeur, born in Holland, 32 years of age, with a negative family history, entered the Massachusetts General Hospital, October 19, 1911.

P. H. In 1906 he had rheumatic fever, lasting three months, while a second attack in 1907 confined him to the hospital for four months. The diagnosis at discharge read: "Acute articular rheumatism, subacute arthritis, mitral insufficiency, acute endocarditis, broncho-pneumonia, pleurisy with effusion, enlarged tonsils."

P. I. After leaving the hospital he was well until the early summer of 1911. He spent two years in a machine shop. Since then had had easy work as a chauffeur in winter, and engineer on his employer's yacht in the summer.

Early in the summer of 1911, he began to have dry cough and was easily fatigued. A week before entrance to the hospital, dyspnea became prominent, and this had steadily increased; the edema of the feet and ankles had also increased. For about four weeks orthopnea had been present. He was under observation until his death—a period of seventeen days. During this time he ran a continuous temperature, ranging from 99 to 100; occasionally in the evening reaching 101; his pulse was constantly rapid; from 110 to 120; his respirations ranging from 30 to 35. The heart was enlarged; evidence of endocarditis was present at the mitral and aortic valves. There was a constant leucocytosis present, the white count ranging from 10,600 to 20,500; a moderate secondary anemia persisted, the red cells varying from 2,690,000 to 3,200,000, and the hemoglobins 55% at entrance, reached 75%.

On two separate occasions atypical streptococci were isolated from the blood in pure culture—October 19 and October 29. His urine just before death showed a few granular casts with cells adherent.

The interest in the case lies in a study of the organism, an atypical streptococcus, isolated from the blood during life, and a study of this organism in sections of the fresh endocardial vegetations, and in sections of the spleen and kidneys, where emboli were found, postmortem.

The anatomical diagnosis is as follows:

Acute vegetative endocarditis, of the aortic and mitral valves.
Chronic fibrous endocarditis of the aortic and mitral valves.
Small aneurysmal dilatation of the aorta.
Chronic adhesive pericarditis.
Hypertrophy and dilatation of the heart.
Chronic passive congestion.
Ascites.
Infarcts of spleen and kidney.
Chronic pleuritis.
Acute glomerulonephritis.
Septicemia (a filamentous microorganism).

Bacteriological Examination. The organism is a Gram-positive one and stains by the ordinary aniline dyes.

Morphology. Cultures 24 hours old or less on hydrocele-agar show chains of micrococci without capsules with a tendency toward diplo-formation. Some of the organisms resemble pneumococci except that they are much smaller. Cultures older than 24 hours show many pleumorphic forms including oval and apparently barred forms, together with chains of streptococci.

Cultural Characters. On hydrocele-agar there are minute round grayish-white colonies, very slightly moist. Cultures on gelatine or blood serum are similar to those on hydrocele-agar. It does not

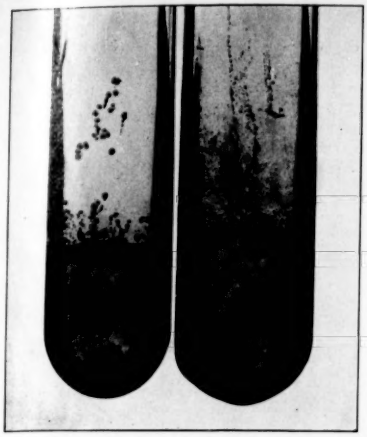


PLATE 1. Twenty-four Hour Growth on Plain Agar.



PLATE 2. Forty-eight Hour Growth from Spleen. Hydrocele Agar. x 1500.



PLATE 3. Valve Vegetations.



PLATE 4. Section of the Kidney. Filamentous Organism in Capillary of Kidney. x 1500.



PLATE 5. Heart Valve Section Showing Filamentous Organism. x 2000.

liquify gelatine. It coagulates milk without gas formation or peptonization.

Carbo-hydrate Reaction. There is no growth on potato. Culture in His's serum water to which lactose, salicin, saccharose, dextrose, mannite, raffinose and inulin are added, show no gas formation in any of these carbo-hydrates but an acid formation in lactose, salicin, saccharose and dextrose.

Hemolysis. Cultures on glucose-agar to which human corpuscles have been added show no hemolysis, even after five-days' incubation, but a gradually increasing dirty greenish zone surrounding the colonies.

Microscopical Examination. Vegetations on heart valve. Masses of fibrinoid material infiltrated by leucocytes and some red blood corpuscles are present; also masses of an irregular Gram-staining filamentous micro-organism presenting spindle-shaped thickenings in some instances.

Spleen. An infarcted area is present. Groups of filamentous irregularly Gram-staining micro-organisms are present. There is hyaline degeneration in and about the follicles.

Kidney. An infarcted area is present. The glomeruli generally show proliferation of their endothelium and some infiltration of polynuclear leucocytes. Small masses of filamentous irregularly Gram-staining micro-organisms are present. In certain of the glomeruli and capillaries they are also found.

In sections of the heart vegetations, spleen, and kidney, this organism apparently is surrounded by a capsule.

We wish to acknowledge the interest in this case of Dr. James H. Wright, and we would express our appreciation to Mr. L. S. Brown for the photographs accompanying the article.

Reports of Societies.

TRANSACTIONS OF THE AMERICAN SOCIETY FOR THE PROMOTION OF CLINICAL RESEARCH, WASHINGTON, D. C.

May 5, 1913.

(*Continued from page 173.*)

RELATION BETWEEN NON-PROTEIN NITROGEN RETENTION AND PHENOLSULPHONEPHTHALEIN EXCRETION IN EXPERIMENTAL URANIUM NEPHRITIS.

Drs. O. Folin, W. Denis, R. Fitz and C. Frothingham, Jr., Boston.

In this work Folin and Denis' method for detecting the amount of non-protein nitrogen and urea in the blood was used. The method is accurate and simple and only requires 2 c.c. of blood. The phenolsulphonephthalein test was done as recommended by Rowntree and Fitz in their experimental work with this and other tests. An acute nephritis was produced in rabbits by uranium nitrate injection subcutaneously and the two tests studied at different stages of the nephritis.

From these experiments it became evident that both these tests for renal function went hand in hand in a general way with the pathological condition in the kidney and with the tests for albumen and casts in the urine.

The phenolsulphonephthalein test is an indication of the renal efficiency at the moment. As the non-protein nitrogen in the blood accumulates gradually the amount of retention is not indicative of the renal function at the moment unless the history of the case is taken into consideration.

DISCUSSION.

Dr. W. T. Longcope, New York: How was the urine from the rabbits obtained?

Dr. Channing Frothingham, Jr., Boston: By milking the bladder.

Dr. S. J. Meltzer, New York: What was the daily amount of urine in these animals? Was it comparable to the normal output? What kind and amount of food was given?

Dr. H. O. Mosenthal, New York: It seems possible to interpret the increase in non-protein nitrogen retention as an expression of increase of protein destruction, as well as of renal insufficiency.

Dr. W. S. Thayer, Baltimore: The introduction of a method by which we may estimate the extent of renal insufficiency is of great importance from a prognostic standpoint. Where, in those cases of impending uremia, we can demonstrate a high percentage of non-coagulable protein in the blood, the prognosis is very grave.

Discussion closed.

Dr. C. Frothingham, Jr., Boston: The experimental rabbits were frequently anuric during periods of high nitrogen retention.

The same food was given all of the rabbits; it consisted of hay and 100 grams of carrots; the rabbits would not always eat all of the carrots.

I do not know the source of non-protein nitrogen, but its increase in the blood seems very definitely to be due to renal insufficiency.

I believe that the estimation of the blood content of retained nitrogen is going to prove of greater value for prognosis than the phenolsulphonephthalein test, inasmuch as the latter test gives reliable information only for the moment.

THE OCCURRENCE OF NUCLEAR PARTICLES IN THE ERYTHROCYTES FOLLOWING SPLENECTOMY.

Dr. Roger S. Morris, Clifton Springs, N. Y.

The blood findings in four patients following splenectomy were reported. It was found that in all four cases examined, nuclear particles were present to a greater or less extent in the erythrocytes. The greatest number found was apparently in a patient thirteen days after removal of the spleen. At this time one hundred and thirty red cells with nuclear particles were found in counting five hundred white blood cells. In a second patient, on the fifth day after operation, there were found twenty red cells with nuclear particles in counting five hundred leukocytes. The two remaining cases were apparently intermediate between these. In one the operation had been done several years previously. In the other, the exact date of operation was not known, but it was said to be a recent case. As the examinations were made on specimens which had been collected for another purpose and as leukocyte counts were not made on the days that the smears were prepared, it has been impossible to calculate

the absolute number of red cells per cubic millimeter which contained nuclear particles. A few normoblasts were found in all four cases.

Roth has reported a remarkable case in which large numbers of nuclear particles were found in the blood three years following splenectomy. Schur in 1908 reported similar findings in a patient who died with pernicious anemia and in whom there was complete atrophy of the spleen.

The nuclear particles are so inconspicuous that they are easily missed in making the usual differential count. To find them when only a few are present, it is necessary to move the slide very slowly, and it is of advantage to use an Ehrlich's diaphragm.

While the number of cases studied is very small it seems possible that the changes described may be a fairly constant feature of the blood of patients who are deprived of their spleen, either through operation or by atrophy of the organ. The findings also suggest an intimate physiological relationship between the spleen and normal hematopoiesis.

The presence of nuclear particles and normoblasts with a normal red count, as in Roth's case, is unusual.

It has been possible to reproduce these findings in splenectomized rabbits. The number of observations is at present too small to determine whether or not the change is a constant one.

DISCUSSION.

DR. W. T. LONGCOPE, New York: With reference to the presence of nucleated reds with a normal count, it is a fact that in cases of lead poisoning there are always to be found nucleated red cells in the absence of anemia.

In the case of two children with cyanosis from cardiac disease, I have found nucleated red cells while the red count was 6,000,000 and the hemoglobin was 90% and 95%.

DR. W. S. THAYER, Baltimore: In this connection it may be of interest to cite a case seen with Dr. Miller, of Baltimore. This was a colored boy with an unaccountable chronic leg ulcer; there was some anemia from time to time; the blood contained nucleated red cells, some of which were marked by chromatic dots. The spleen was not demonstrable by any of the methods of physical examination.

Discussion closed.

DR. ROGER S. MORRIS, Clifton Springs, N. Y.: I am much interested in Dr. Longcope's remarks on lead poisoning; I was not aware of the presence of normoblasts in such cases.

In the cases of cyanosis in which nucleated cells were found, the explanation is probably to be found in the concurrent polycythemia.

Dr. Thayer's case is of great interest in this connection.

ABSTRACT.

SALVARSAN IN PERNICIOUS ANEMIA.

DR. THOMAS R. BOGGS, Baltimore.

The conflicting report on the use of this drug in the treatment of pernicious anemia justifies a brief summary of personal experience and review of the more important previous reports.

Leede's unfavorable results were probably due to beginning too late.

Bramwell's reports have been encouraging.

In our experience with small doses at intervals of four weeks we have seen no unfavorable result attributable to the drug, and some remarkable apparent cures in patients who did not respond to other forms of arsenic.

The experience at the Johns Hopkins Hospital, while the study was less complete does not show any bad results attributable to the use of salvarsan. It is important that this drug be tried promptly in this disease, and especial attention paid:

(a) To the question of syphilis in the patient.
(b) Influence of salvarsan when given alone.
(c) The effect on arsenic-refractory cases.
(d) Permanence of the results.

DISCUSSION.

DR. JOS. L. MILLER, Chicago: I entertain, perhaps, unwarranted pessimism as to any real improvement in pernicious anemia, especially when I have so often seen periods of very marked improvement appear independent of therapy. My experience is that when improvement takes place during the administration of arsenic, thorium, or anything else, a relapse may be expected and when it appears the remedy which was supposed to be responsible for the improvement has no further good effect.

DR. I. ADLER, New York: I must confess to agreeing with Dr. Miller. I have for many years observed a great number of cases of pernicious anemia, and I believe that if such cases are observed long enough it will be found that they are never cured.

I remember one case in which improvement, almost to normal, occurred and was sustained for three years, when the inevitable relapse appeared. No therapy really affects the underlying cause of pernicious anemia, whatever it may be. Those cases that are refractory to arsenic are generally those that can no more be helped by anything.

DR. S. J. MELTZER, New York: May not the effect of salvarsan in pernicious anemia be merely that of stimulation of the formation of red blood cells?

Whatever the mode of action, certainly an increase of red cells from 500,000 to 5,000,000 under exact laboratory observation, indicates a very unusual degree of success in the treatment of these cases, at least. We are all familiar with the type of observations made by Dr. Miller and Dr. Adler, and some of us are old enough to realize the fallacy of depending upon mere therapeutic observations; but Dr. Boggs' studies were controlled by exact laboratory observations and should command thoughtful attention.

DR. H. F. SWIFT, New York: With respect to febrile reactions, much stress was laid upon this feature of salvarsan therapy in the early Hamburg reports, and at that time such reactions were very frequent. But with improved technic of administration, most of these cases can be ruled out now. We have had one syphilitic patient, however, who is persistently fibrile after salvarsan administered with the most careful technic.

DR. J. A. CAPPS, Chicago: The mere fact of the improvement of Dr. Boggs' patients is not so impressive as the fact of the rapidity of the blood regeneration. In most cases the improvement is more gradual; as, for instance, in one of my cases in which the red count rose from 1,000,000 to 4,000,000 after normal salt by rectum, but in which this improvement required two months' time. I can recall

no treatment comparable in rapid results to the method employed by Dr. Boggs.

I would like to ask Dr. Boggs in what proportion of his cases was a syphilitic history obtained?

DR. J. H. PRATT, Boston: Naegeli has found that since the introduction of arsenic in the treatment of pernicious anemia, relapses are much more common. This may mean that improvement is more often noted after arsenic therapy.

DR. W. S. THAYER, Baltimore: We should hardly take Dr. Boggs to mean that he regards salvarsan as a cure for pernicious anemia. He seems merely to be presenting some very striking results obtained by giving this drug in this disease. What was the size of the dose given? Possibly the fear of febrile reactions deterred him from giving large enough doses. If there is any underlying protozoal cause for pernicious anemia, the use of a lethal dose of the drug is important.

DR. T. R. BOGGS, Baltimore: It was not at all my intention to announce a cure for pernicious anemia. The work was undertaken and the results were reported because we so easily get into the habit of letting these chronic conditions alone. I was impressed by the rapid blood regeneration possible in this particular chronic disease, and the cases seem to point out that we are not entirely helpless even when confronted by extreme grades of pernicious anemia.

The dose employed was 0.30 gm. of old salvarsan. All of the patients had febrile reactions and they were rather more severe than one encountered in the treatment of syphilitics. In the very sickest patient the temperature rose to 104° F. and his condition was desperate for a time.

In my own four cases there was no evidence of lues; in the eleven cases from the Hopkins, two were luetic, one having a very severe blood depression and dying in 72 hours.

INTESTINAL SAND. REPORT OF A CASE WITH CHEMICAL ANALYSIS OF SAND.

DR. FRITZ B. TALBOT, Boston:

The writer reported a case in which true intestinal sand appeared in the feces at frequent intervals always associated with digestive symptoms. Unlike the case of Myer and Cook (*Am. Jour. of Med. Sciences*, 1909, Vol. cxxxvii, p. 383), the sand had no connection with the bananas in the food.

The chemical composition was as follows:

Nitrogen	3%
Total fat	5%
Ash	17.4%
Calcium	7.4%
Magnesium	2.0%
Phosphates	present
Material soluble in alcohol after hydrolysis (resinous?)	14%

No discussion.

SOME EFFECTS OF REPEATED ANAPHYLACTIC SHOCKS IN ANIMALS.

DR. WARFIELD T. LONGCOPE, New York.

The experiments were planned to determine if changes in the parenchymatous organs and particularly the kidneys, could be produced in animals by injecting repeatedly in sensitized subjects sublethal doses of foreign protein. Guinea-pigs, rabbits, cats and dogs were used in these experiments. Egg white and horse serum were employed as foreign proteins. Three weeks after sensitization guinea-pigs were inoculated repeatedly intraperitoneally, rabbits intraperitoneally and intravenously and cats and dogs intravenously, at periods of four days to three weeks. In some instances as many as 12 to 14 inoculations were made. After repeated inoculations the kidneys both of dogs and rabbits showed well marked changes consisting in necrosis of the cells of the collecting tubules and loops of Henle with varying degrees of patchy cellular infiltration in the interstitial tissue extending from the mid zone to the cortex. In the animals that survived longest, the cellular infiltration was accompanied by an increase of connective tissue with atrophy of tubules and thickening of the glomerular capsules. In the livers of rabbits and cats there occurred necrosis of liver cells varying in size from the space occupied by a few cells to large portions of the lobule. These were most marked in rabbits. They were usually situated in the periportal zone but occasionally involved the mid zone of the lobule. Together with these areas of necrosis about which the capillaries were open, there was extensive infiltration of small round cells with later new formation of connective tissue in the portal spaces, leading in advanced cases to a picture resembling somewhat a portal cirrhosis in man.

In the guinea-pigs no extensive lesions were found in either liver or kidneys.

These experiments show that repeated anaphylactic shocks give rise in dogs and rabbits to varying degrees of acute and chronic interstitial nephritis, and in rabbits and cats to changes in the liver that result in a moderate degree of portal cirrhosis.

DISCUSSION.

DR. H. A. CHRISTIAN, Boston: As to the possibility that the lesions described by Dr. Longcope may have been spontaneous in origin, from the description of the liver lesions, I do not think it very likely that they were spontaneous.

In my own work with rabbit livers, it is rare to meet with lesions, except in coccidial livers, where the changes are more like hemochromatogenous hepatitis.

It is more difficult to answer the question as regards the kidney, but it may be decided for practical purposes by studying the kidneys of control rabbits from the same stock.

DR. I. ADLER, New York: A number of years ago, I fed chickens exclusively with meat and found lesions in the liver identical with those found by Dr. Longcope in the livers of his rabbits.

DR. C. FROTHINGHAM, JR., Boston: What does Dr. Longcope regard as the primary lesion in the kidney? Is it vascular, parenchymatous, or interstitial?

DR. E. C. ROSENOW, Chicago: Were the rabbits studied by Dr. Longcope old or young? I have found that spontaneous nephritis is very rare in young rabbits.

Discussion closed.

DR. W. T. LONGCOPE, New York: In reply to Dr. Christian's remarks, I would say that I have studied control rabbits from the same stock, and have not found spontaneous kidney lesions; but I have felt that the evidence was not conclusive.

I am not certain where the primary lesion takes place, but I believe the first charges are to be found

in the walls of the capillaries and in the tubular epithelium.

The rabbits used in the experiments were young animals weighing from 1000 to 1500 grams.

Dr. Adler's remarks were interesting and his work was evidently confirmatory of my own.

STREPTOCOCCUS ANAPHYLATOXIN AND HYPERSENSITIZATION OF RABBITS, AND GUINEA-PIGS TO VARIOUS STRAINS OF STREPTOCOCCI.

DR. GEORGE DRAPER.

The object of the investigation was, first to produce an anaphylatoxin from various strains of streptococci and then to produce hypersensitive states in rabbits and guinea-pigs with streptococci.

By using old broth cultures, anaphylatoxins were produced with regularity. The centrifugates of large quantities of the culture were left in contact with fresh guinea-pig serum at room temperature for 24 hours, and the supernatant serum of this mixture, after centrifugation (about 4 cc.) were injected into the jugular vein of a guinea-pig. Typical anaphylactic shock and death in from two to five minutes with typical autopsy findings occurred in all cases in which the above technic was used.

In the hypersensitization experiments the animals were given two or three sensitizing doses—the guinea-pigs, intraperitoneally; the rabbits intravenously—of streptococci heated to 60 for one-half an hour. The amounts varied from the centrifugate of 10 cc. broth culture to 0.05—0.1 gm. (by volume as shown by graduate centrifuge tubes). The streptococci were thoroughly washed in salt solution before injection. Three weeks or more after the last dose the rabbits were given 0.1 to 0.3 gm. intravenously. There were marked symptoms in several cases and death in two. The symptoms had certain suggestive characteristics of anaphylactic shock in rabbits but were not typical. They were severe, however, and similar in all the experiments.

The guinea-pigs had typical anaphylactic symptoms but death was not produced.

There are now in progress control experiments of the phenomena described in guinea-pigs and experiments with the rabbits that have survived the previous injections of large quantities of killed streptococci to determine whether they have been rendered more susceptible to infection with the living organism.

BESREDKA'S METHOD OF PREVENTING ANAPHYLACTIC SHOCK.

DR. R. WEIL, New York:

It is well known that sensitized animals, which have received a sublethal dose of antigen, become anti-anaphylactic. Besredka, therefore, suggested that human beings in whom there was a possibility of previous sensitization should receive a small dose of antigen, previous to the therapeutic injection. The question arises whether Besredka's generalization is justifiable. His results were based on experiments on guinea-pigs, which had received very minute fractional doses of serum to sensitize. He stated that larger primary doses do not sensitize but immunize. As has been described in another article, however, the vast majority of immunized animals may be shown to be typically anaphylactic, provided the intravenous route is employed for the toxic injection. The problem, therefore, narrows itself down to the question whether guinea-pigs sensitized by large doses are rendered anti-anaphylactic by the administration of an intermediate, relatively small, injection of antigen. It was demonstrated by means of experiments both on actively and on passively sensitized guinea-pigs that this is absolutely not the case. In fact, such animals may be given an intermediate injection of antigen which would suffice to kill control animals sensitized by small doses, and still remain anaphylactic. Under certain conditions, they may be even more highly anaphylactic than before. It follows that the intermediate prophylactic injection cannot in sensitized guinea-pigs be calculated in such a manner as to render the animal anti-anaphylactic, unless the degree of sensitization, and the corresponding minimal lethal dose, be accurately known. In human beings, such information is, of course, impossible, and the Besredka method is consequently always unreliable, and at times even dangerous. A case report from the French literature is cited, in which the B. method was employed in a human being, and the subsequent therapeutic injection produced anaphylaxis and threatening death.

DISCUSSION.

DR. R. I. COLE, New York. Does the time relation affect the results?

DR. W. T. LONGCOPE, New York: I have observed about the same phenomena when giving serum intraperitoneally or subcutaneously; at the same time, intravenous injections of rather large doses would produce symptoms. Has Dr. Weil used repeated intravenous injections? I have observed also that repeated small doses will finally produce symptoms.

Discussion closed.

DR. R. WEIL, New York: The period of desensitization does not exceed eight days. In active anaphylactic sensitization the time period has not been worked out. As far as guinea-pigs are concerned sensitization lasts for life.

In reply to Dr. Longcope's question, a moderate degree of protection can be induced for intravenous injections, but it is not absolute.

If in rabbits serum is given every day, there will be no symptoms; if, however, an interval of three or four days is allowed, accidents will thereafter occur.

STUDIES ON THE INCUBATION PERIOD.

No. 2 Concerning Virulent and Avirulent Cow-pox Vaccine.

DR. DAVID MURRAY COWIE, Ann Arbor: In a preceding study of the Incubation Period (No. 1) the clinical phenomena following the injection of horse serum were considered. (Serum sickness.) The present study has to do with similar or analogous phenomena following the introduction of cow-pox vaccine into the body in various ways.

The usual phenomena following the ordinary cutaneous vaccination in the unvaccinated and revaccinated are well known. Theoretically we might expect an earlier take in a revaccine if any take should occur, and experience teaches us in a great many instances this is so. A point that has not been generally recognized is that within 24 to 36 hours after the introduction of living cow-pox

lymph into the skin of an individual previously successfully vaccinated a certain degree of hyperemia results, but does not so result after a primary vaccination and that during the incubation period of a primary vaccination and preceding the development of the papilla a similar hyperemia may be obtained by introducing fresh vaccine into the skin. This we have every reason to believe is an allergic phenomenon and shows that the entire organism has responded to the initial injection.

Virulent cow-pox lymph may be injected in low dilution into or beneath the skin in appreciable amount without inducing general symptoms. Subcutaneously the deep infiltration felt after injection continues for a few days, then gradually disappears. Within 24 hours the body becomes allergic. Intradermal injections are followed in a few hours by hyperemia and nodular formation which persist for many days. The body likewise becomes allergic within 24 hours. Reinjection in either case is accompanied by an almost immediate response. Children subsequently vaccinated by the cutaneous method in the majority of instances fail to react with papilla or pustular formation.

The phenomena following similar injections of avirulent (dead) lymph react differently. This difference seems to be one of degree up to a certain point. High dilutions of lymph from 1-100 to 1-1000 induce the allergic state (but allergy seems to be attained more gradually.) Intradermal injection leaves no nodular formation in the majority of instances. (This depends to a certain extent upon the physical state of the lymph.) No cutaneous reaction follows these primary injections (excepting with very concentrated solutions, when a reaction occurs within 24 hours); re-injection of high dilutions intradermally is followed on the third and fourth day by a cutaneous reaction analogous to the cutaneous tuberculin reaction. The larger the initial injection the surer the subsequent cutaneous reaction. Following successive inoculations of avirulent lymph, in proportion to the total amount injected, up to a certain point, a greater cutaneous reaction occurs. This is analogous to successive horse serum injections. However, all points do not light up as in successive cutaneous vaccination and horse serum injections. No febrile reaction follows the first injection of avirulent lymph in the unvaccinated. On the other hand, if an individual previously successfully vaccinated is given a subcutaneous injection of dead lymph, of certain concentration, he may react with fever, local hyperemia, and nodular formation within 16 hours.

An individual once successfully vaccinated is apparently permanently allergic. That is, he will always react without question to an intradermal injection of diluted avirulent lymph (21 years). An unvaccinated individual who contracts smallpox reacts quickly to an intradermal injection of diluted avirulent cow-pox lymph. The reaction is usually first seen early, within 5 to 10 hours, and may fade quickly. This shows the phylogenetic relationship of smallpox and cow-pox.

From these observations it will be seen that sensitization to virulent cow-pox vaccine is a quick affair, a matter of hours, not days, as in tuberculosis and serum disease; that a greater reaction seems to obtain after a pronounced cutaneous vaccination. Such cases may react in fractions of an hour after an intradermal of 1-100 avirulent lymph.

The infiltration of the tissues of the arm following cutaneous vaccination, revaccination, and reinjection of living or dead lymph is an allergic phenomenon and is analogous to the specific edema of v. Pirquet in serum disease.

Children who have never been vaccinated may be rendered immune to cutaneous vaccination with virulent cow-pox lymph by subcutaneous and subepidermoidal injection of avirulent lymph. In cases which do react after such immunization the subsequent course of the cutaneous vaccination is attenuated.

The incubation period of cow-pox disease is characterized by a very short preallergic stage as compared with serum disease and as recognized by the intradermal test.

In this brief abstract space does not permit of proper reference to the early workers with cow-pox lymph, or of the more recent and highly meritorious work of Knöpfelmacher, v. Pirquet, Hamburger, and their co-workers.

No discussion.

(To be continued.)

Book Reviews.

Geschichte der Ohrenheilkunde. von DR. ADAM POLITZER. Zwei Bände. II Bande. von 1850-1911. Unter Mitwirkung Bewährter Fachkräfte. Mit 29 Bildnissen auf 29 Tafeln. Stuttgart: Verlag von Ferdinad Enke. 1913.

Politzer finishes a monumental career with a most fitting and monumental work,—his "History of Diseases of the Ear." The second volume of this work, a book of 484 pages, has lately appeared. It is divided into two parts, the first dealing with the important advances in the anatomy, physiology and pathology of the ear, from 1850 to 1911, and the second division with the history of the development of otology in the different countries of the world. The text is made up of monographs by various well-known men. The portraits of many of the pioneers in otology are introduced. The history of otology in England is written by Hunt, Birkett writes of Canada, and Blake of the United States.

It cannot fail to be a matter of pride to Americans that the volume is dedicated to Boston and New York, that is, to Professor Clarence J. Blake and Professor Gorham Bacon. The book is practically an encyclopedia of otology, scientific and historical. For years it should hold first place as a reference book. It is hard to see how anyone writing a scientific paper can afford not to consult it in substantiating his data.

The collaborators have been very generous in mentioning their confrères. This is especially true of the United States. In one instance, at least, this good will was carried so far as to give one man a title which fate has not bestowed upon him. The writer hopes that this may be prophetic.

The book is beautifully printed on fine paper. The second part might be called the "Who's Who," or the Blue Book of Otology.

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Medical and Surgical Journal

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A DECENNIUM OF PROGRESS.

THE November *Bulletin* of the National Child Labor Committee reviews a decade of work to free children from labor in factories, mines and shops. The finest optimism is that which persists in being optimistic despite the greatest temptations and justifications to adopt a pessimistic view of civilization. This committee's experiences would have justified the latter viewpoint, yet its report breathes throughout a confident and optimistic spirit. Much practical accomplishment is recorded, both in legislation and in factory reform; and a summary of child labor legislation shows a much longer list of laws secured than of defeats.

"The committee, organized ten years ago for a short and sharp campaign against child labor, has had to face much disillusionment. Idealists who supposed that if the people realized the truth about child labor they would forthwith abolish it, have learned that public knowledge is not sufficient until it is fired with enthusiasm and guided by active leadership. The National Child Labor Committee has grown in membership and efficiency, and it has been able to advance with ever-increasing momentum against the phalanx of tradition, indifference and greed. But the short and sharp campaign is lengthening into a twenty years' war. However, so long as we continue to have the loyal coöperation of our members, we know that there will be an end to the war, a joyful day when the committee will celebrate its anniversary, not by an appeal for doubling the membership, but by permanently disbanding the forces. Meantime, that day is far distant, and we most earnestly call to the attention of our readers the celebration of our tenth anniversary."

The committee's two most notable achievements are: the adoption of a children's code in Ohio, fixing a minimum age limit for employment at fifteen years for boys and sixteen years for girls; and the enactment of a law in Massachusetts limiting the hours of labor for children under sixteen to eight per day. Massachusetts is the first commonwealth in the world with cotton textiles as a leading manufacture to set so high a standard. The law was strongly opposed, and the factory owners have been threatening to repeal it. The results of such a law have shown that none of the bad effects on industry and public welfare always predicted by opponents have followed. On the other hand, in the North Carolina cotton mill communities, the school attendance is always lower than in the rural or even the mountain districts.

In looking forward to the tenth anniversary (April 14, 1914) the committee records that the child labor laws of all states except two have been improved; that exact knowledge of the condition of working children has been established, together with a recognized standard of protection; and that the federal government has in successful operation the Children's Bureau. The committee has increased to 7500 members, thirty-five state and local committees have been organized, the necessary expenses have exceeded $60,000, and the printed matter issued has increased from a few leaflets to over 6,000,000 pages.

This committee considers that its greatest work lies ahead; abolition of fourteen-year age limit exemptions for poor children, closing the street trades to boys under fourteen and girls under eighteen; a sixteen year limit for dangerous occupations, and an eighteen year limit for extra hazardous occupations; to twenty-one year limit for boys called on to face the moral dangers of night messenger service; higher standards for proof of the requirements under child labor laws; regulation of hours of work for all minors and medical inspection for them (services rendered by no state in the union at present); broader public discussion of the need for a general sixteen year age limit; the education of children excluded from school to meet

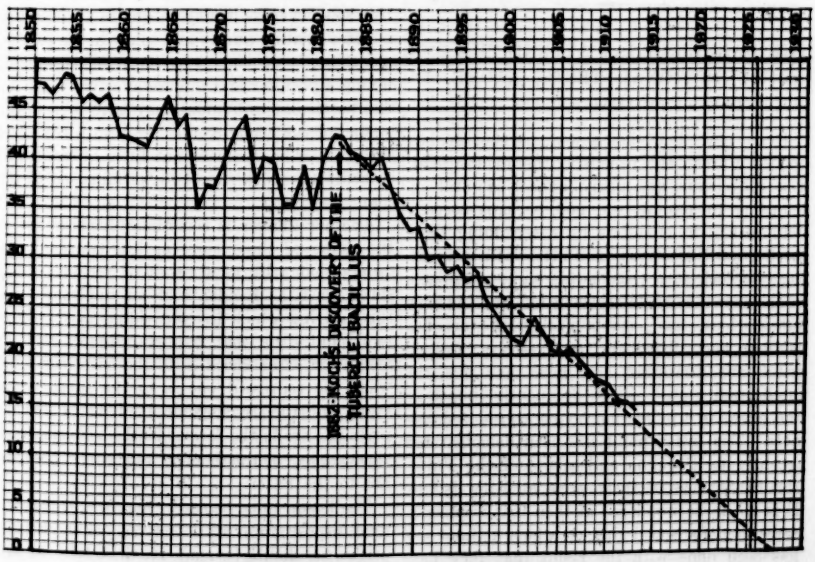
the demands of an industrial age—such are some of the things the committee has set itself to work out.

The report closes with an appeal that by the anniversary day the members shall put the committee on a working basis of 100 guarantors, 1000 sustaining members, and 10,000 associate members.

BOSTON'S TUBERCULOSIS DEATH-RATE DECREASING RAPIDLY.

THE death-rate from tuberculosis in Boston has very rapidly decreased since 1882. This is graphically shown by a chart which appears in the tenth annual report of the Boston Association for the Relief and Control of Tuberculosis. This chart discloses the fact that from 1850 to 1882, 32 years, the death-rate from tuberculosis decreased only from 47⅛ to 42, or 5½ points per 10,000 inhabitants. The following 31 years, 1882 to 1913, the death-rate from tuberculosis decreased very rapidly, from 42 to 15, or 27 points. This rapid decrease in the second period is partly accounted for by the fact that in 1882 Dr. Robert Koch, discovered the tuberculosis germ. Before this time the cause of the disease was unknown, but as soon as discovered it was possible to take proper steps to suppress it by the establishment of hospitals and through vigorous educational campaigns. The organization of the Boston Association for the Relief and Control of Tuberculosis in 1903 and the establishment of the Boston Consumptives' Hospital Department in 1906 further assisted in reducing the death-rate.

The report further tells of the effort of the association to induce the city council to favor the appropriation of $125,000 for additional accommodations at the consumptives' hospital, recommended by the mayor and the consumptives' hospital department. This appropriation has since been passed. Other matters the association is interested in are the further extension of open-air schoolrooms throughout the city, the more general use of the night clinic at the consumptives' dispensary on Burroughs Place for those at work through the day who would like to be examined. Several legislative bills affecting tuberculosis and health, as well as the hearings conducted by the recess committee on tuberculosis, received considerable attention from



BOSTON TUBERCULOSIS CURVE.
Broken line indicates the number of deaths per 10,000 of population from Pulmonary Tuberculosis (Consumption).
Dotted line indicates the rate of decrease since 1882 continuing into the future.

the association. Experiments in domestic science and following up patients discharged from sanatoria and hospitals were carried on during the year.

The educational work was conducted by means of an exhibit, a part of a large health exhibit sent to different cities in the state under the auspices of the State Board of Health; the distribution of 171,000 pieces of literature to school children, night schools and at motion picture theatres; and by 352 illustrated lectures, 323 of which were given in 36 motion picture theatres of the city. These lectures were given to a total of about 148,500 persons. At Prendergast Camp a total of 61 patients were cared for during the year.

The expense of the association for the year amounted to $16,661.48. The expenses for the coming year may be greater, as the association has consented to finance, at least for the present, the Massachusetts Anti-Tuberculosis League, a state society the association took an active part in organizing this month. It is hoped that this league of the 35 societies in the state, fighting tuberculosis, will further assist in reducing the death-rate from this preventable disease.

THE DANGERS THAT ATTEND THE USE OF FUNCTIONAL TESTS, ALONE, IN MENTAL EFFICIENCY.

EVEN now that the newer psychology has opened a broad and promising therapeutic field, some physicians and many laymen are still attempting to account for, and perhaps correct, delinquency in offenders by determining their intellectual limitations (and afterward instructing) by cock sure tests, losing sight oftentimes of the fact that when the long hidden, and now subconscious, traumata of earlier life are unearthed and dispelled, the tendency toward crime may disappear, and more than this, the intellectual ability itself frequently improves and grows to a point that no one considered possible. The latter point has been demonstrated recently by Sprague and others of the Public Health Service in their work at Ellis Island. It is not to be wondered at then that women incarcerated for social sins, on whom a Binet test has been done with the result that they have been called "seven years old mentally." do test out this way, and that they return almost immediately to the old life from whence they came, especially when no attempt at analysis has been made.

It must be evident to all then that in any work with defectives some attempt should be made to get acquainted with the individual himself, and to learn the stimuli and complexes that go to make him exactly what he is, and further than this, to know how and why he differs from those who have apparently been exposed to a similar set of circumstances during the developmental period of their own lives. To express this more definitely, find out what experiences he had that the others may not have had, and which one or ones had the strongest effect on him and which relate to the intricacies of the present trouble.

With these suggestions in view it must be apparent that the study of defectives is an infinitely complex problem, and not one to be delegated to workers with mechanical tests, who have no knowledge of modern psychiatry, although performance tests are instruments of immense value when they are in the hands of people who are qualified to use them intelligently.

Many of us, I believe, look upon deficiency in most cases as being due at least to tangible physical conditions with consequent organic or toxic processes, whereas it may be due in a given case to states existing purely and solely in the psyche, and these, being caused by impressional stimuli having a peculiar and intense affective value for that particular individual, may have been at the bottom of the whole trouble, and until the exact percept can be disclosed but little progress will be made toward a successful termination of the case.

Another danger is sometimes encountered in the shape of those more or less transient disorders that arise as a result of recent psychic shock, such as incidents of an unpleasant nature, during which the individual may be able to do but little that requires slightly complex mentation. This shock is to the conscious mind what the repressed one is to the subconscious mind, and the psychogenic excitements and depressions are to the former as the hysterias, psychasthenias, neurasthenias, and minor neuroses are to the latter.

The lesson to be learned, therefore, is that the final disposition of all defectives, delinquent and otherwise, should be made on the advice of psychiatrists as well as psychologists, or, if necessary, a combination of both in one.

MEDICAL NOTES.

Treatment of Tuberculosis by Induced Pneumothorax.—Dr. Martin F. Sloan has been engaged as expert for three months to introduce the treatment of pulmonary tuberculosis by induced pneumothorax at the United States Public Health Service Sanatorium at Fort Stanton, New Mexico. Dr. Sloan is a graduate of Johns Hopkins Medical School, 1908, and since graduation has been on the staff of that institution as assistant in medicine. He is also on the staff of the Phipps Tuberculosis Dispensary, from which clinic he selects most of the patients for Eudowood Sanatorium (Hospital for the Consumptives of Maryland, Towson, Md.), of which institution he has been superintendent for the last four years. Eudowood will be remembered as the first institution in this country to establish a farm colony for convalescents and introduce graduated exercise as a therapeutic measure. Induced pneumothorax was introduced at Eudowood by Dr. Sloan in 1911 with an apparatus of his own, which is a modification of Saughman's. The Public Health Service Sanatorium at Fort Stanton offers an admirable field for the employment of induced pneumothorax because of the large number of far advanced cases and the opportunity which the government affords to retain under treatment beneficiaries who are disabled by their disease for a long period of time. Of the 200 patients under treatment, all adult males, thirty have been selected as suitable cases for treatment by this method. Dr. Sloan's engagement with the Public Health Service terminates March 1, when he will rejoin his sanatorium at Towson, Md.

Smallpox in Texas.—Report from El Paso, Tex., on Jan. 23 states that several cases of smallpox have been recently discovered among Mexican refugees from Ojiuja. The patients have been isolated, and all sightseers excluded.

State Hospital for Pellagra.—It was announced on Jan. 28 that a state hospital for the treatment and study of pellagra is to be established at Columbia, S. C.

Gift to Washington University Medical School.—The General Education Board has recently announced a gift of $750,000 to the medical school of Washington University, St. Louis.

Virginia Central State Hospital.—The recently published forty-third annual report of the Central State Hospital at Petersburg, Va., records the work of that institution for the fiscal year ended Sept. 30, 1913. During this period 990 male and 997 female patients were inmates of the hospital. Twelve of these had pellagra, of whom ten died. All the colored insane of Virginia are maintained in this institution, there being none in any almshouse, jail, or other local establishment.

American Society for the Control of Cancer.—The American Society for the Control of Cancer in coöperation with the Twentieth Century Club and the Pittsburgh Academy of Medicine held a public educational meeting on cancer, in the Soldiers' Memorial Hall, Pittsburgh, on Tuesday evening of this week, Feb. 3.

Invitations were sent to the most representative and influential people in Pittsburgh and vicinity, including members of women's clubs, men's clubs, bankers, manufacturers, attorneys, ministers, teachers, physicians, and others.

Hon. James R. Macfarlane presided, and Mr. Frederick L. Hoffman, the statistician of the Prudential Life Insurance Company, made the opening address. The chairman of the Committee on Organization of the American Society for the Control of Cancer described the purpose and plans of that Association, which has recently been formed as a national agency to disseminate knowledge concerning the symptoms, diagnosis, treatment and prevention of cancer; to investigate the conditions under which cancer is found and to compile statistics in regard thereto.

BOSTON AND NEW ENGLAND.

In Memory of Dr. Fifield.—Resulting from the International Medical Congress which met in London last summer, the gift of a clock for the Commons room at the Royal College of Surgeons has been made in memory of the late Dr. William C. B. Fifield of Dorchester, for many years on the staff of the Boston City Hospital. Dr. Fifield was an honored graduate of the Royal College and served several years in the London hospitals before beginning practice in Dorchester.

A Centenarian.—Mrs. Tahis Langervin, who died on Jan. 27, at Somerville, Mass., is said to have been born in 1808 in Canada.

A MEDICAL NONOGENARIAN.—In the issue of the JOURNAL for June 19, 1913 Vol. clxviii, p. 930) we commented editorially on "a remarkable group of nonogenarians," comprising the four survivors of the Harvard College class of 1838. Since that time, two of these venerable men have died. Dr. James Lloyd Wellington, of Swansea, Mass., therefore now becomes the oldest living graduate of Harvard College, as well as of the Harvard Medical School, the senior Fellow of the Massachusetts Medical Society, and the oldest physician in the United States. Dr. Wellington, who continues in his habitual good health, celebrated on Jan. 27 his ninety-sixth birthday anniversary.

SOCIAL SERVICE AT THE MASSACHUSETTS GENERAL HOSPITAL.—The recently published eighth annual report of the social service department of the Massachusetts General Hospital records the many and varied activities of that body for the calendar year 1913. It is of great interest to those concerned in this form of work.

WILMINGTON WOMEN'S CLUB.—On Monday of last week, Jan. 26, the Wilmington Women's Club held a meeting at the North Reading Tuberculosis Sanatorium. Dr. Carl McCorrison, superintendent of the sanatorium, in an address to the meeting, advocated strongly the establishment of local community hospitals for advanced tuberculosis in all adjoining municipalities having an aggregate population of 10,000 or more. Dr. Edwin N. Kent, president of the Dental Hygiene Council of Massachusetts, spoke on "The Care of the Human Mouth," and Mrs. Eva G. Ripley, of Wakefield, Mass., described the establishment of the District Nursing Association in that town.

WORK OF CHILDREN'S HOSPITAL.—The forty-fifth annual report of the board of managers of the Children's Hospital was submitted at the annual meeting of the corporation, held in Boston on Jan 28. During the past year 1815 patients were treated in the wards, 27,153 in the out-patient department, and 3075 in the social service department. The hospital will soon move to its new buildings on Longwood Avenue.

MASSACHUSETTS HOMEOPATHIC HOSPITAL.—The annual meeting of the corporation of the Massachusetts Homeopathic Hospital was held in Boston on Jan. 27. The report of the trustees emphasized the need of the hospital for a new maternity building and children's ward. During the past year 22,452 patients were treated at the hospital, of whom 6508 were ward cases.

NEW LEPER INFIRMARY.—Plans and specifications have already been drawn by the Massachusetts State Board of Charity for a new leper infirmary to be built on Penikese Island at an estimated cost of $40,000.

"The proposed infirmary will be a one-story structure either of concrete or tile construction, with a wing on either end with accommodations for bed patients afflicted with pneumonia or consumption, which follow closely upon the latent period of leprosy. Two sections of the infirmary will be devoted to a scientific observation of the disease. One will be equipped with an x-ray and other modern apparatus. In the other section of the dispensary will be a consulting room, in which will be preserved the records of every individual case."

INSURANCE LIABILITY FOR OCCUPATION INJURIES.—In a recent case, in which a workman lost the sight of both eyes from optic neuritis, due to inhaling fumes while tending a gas-producing furnace, the Massachusetts Industrial Accident Board awarded the plaintiff $3000 for total disability and $952 additional compensation. The insurance company against which this award was made appealed to the supreme court under the contention that the word "injury" in the statute denotes only an accident caused by some sort of blow. The decision of the court in this test case is of importance as a precedent in determining whether any industrial disease may be construed as a personal injury within the meaning of the law.

HOSPITAL BEQUESTS.—The will of the late Jesse F. Frisbie, of Newton, Mass., who died on Dec. 17, 1913, was recently filed at the Middlesex registry of probate. It creates a trust fund for the establishment and maintenance at Rochester, N. H., of a new hospital, to be known as the Frisbie Memorial Hospital.

The will of the late Mrs. Charles M. Day, of Worcester, Mass., which was filed for probate on Jan. 28, contains a bequest of $10,000 to constitute a trust fund, to be known as the Bancroft-Day Fund, for the benefit of the Milford (Mass.) Hospital.

The will of the late John Ware Willard, of Brookline, Mass., who died on Jan. 19, was filed

recently in the Norfolk county probate registry at Dedham, Mass. It bequeaths to the New England Hospital for Women and Children, the Children's Hospital, and the Boston Floating Hospital each one-seventh of all or any property which may be inherited from the testator's father. To the Children's Hospital, the Boston Floating Hospital, and the Boston Lying-in Hospital, it bequeaths each one-fourth of any and all property which may be inherited under the will of the testator's mother.

The will of the late Benjamin Leeds, of Roxbury, Mass., which was filed for probate on Jan. 27, contains a bequest of $50,000 to the Massachusetts Homeopathic Hospital.

The will of the late Morrill Wyman, of Cambridge, Mass., which was filed on Jan. 29, in the East Cambridge probate court, contains bequests of one-fourth of the residuary estate to the Cambridge Hospital and one-half to Harvard College to establish the Morrill Wyman Medical Research Fund in the Medical School.

NEW YORK.

An Appeal for Radium.—The New York Skin and Cancer Hospital has issued a formal appeal for the use of 500 milligrams of radium (which at present prices would be worth $50,000). In this appeal it is stated that the radium could either be given outright or loaned for a period of five years. Since one-half of the institution is devoted exclusively to the treatment of cancer, its authorities feel that it should have an opportunity to make an exhaustive study of the value of radium in such treatment. No less than 500 milligrams is required, since, in the opinion of experts, less than this amount would not afford a fair test of the usefulness of the agent for this purpose.

Donations to Mt. Sinai Hospital.—At the annual meeting of the managers of the Mount Sinai Hospital, held on January 25, donations of over $325,000 were reported. This amount includes the Benjamin Altman legacy of $100,000, a $100,000 legacy from Mrs. L. W. Neustader, and a gift of $125,000 from Joseph and Sophie Sachs, in memory of their parents, to endow two neurological wards of fifteen beds each. The total expenditures during the year were $469,892, and the income from all sources, $421,384, and the amount of the deficit was borrowed from the permanent fund. A silver service was presented to Dr. A. G. Gerster, senior attending surgeon, who retired from the hospital staff on Jan. 1, after a service of 39 years, and a silver Greek vase to Dr. Julius Rudisch, who retired to become consulting physician, after a service of 34 years on the active staff.

Appointment of Dr. Linsley R. Williams.—Commissioner Biggs has appointed Dr. Linsley R. Williams of New York deputy commissioner of the State Department of Health.

Venereal Diseases.—The city authorities having failed to make any provision for carrying on the work of the Health Department's division of venereal diseases during 1914, the Bureau of Social Hygiene has, as last year, come to the assistance of the department and has pledged a fund sufficient to maintain the positions of a medical adviser, one bacteriologist, six laboratory assistants, one stenographer, and three helpers. During 1913, 18,750 blood specimens were tested for syphilis, and 3,526 for gonorrhea. One orphan asylum now has Wassermann tests made on every child before it is admitted to the institution. In view of the fact that many physicians do not seem as yet to appreciate the attitude of the Health Department towards venereal disease, and that some persist in the belief that cases are being treated in the diagnostic clinics, a portion of a letter recently addressed to all physicians in the city has been reproduced in the *Weekly Bulletin* of the department. In this it is stated: "In order to extend the usefulness of these clinics in combating the spread of venereal diseases, a specially trained physician has been appointed to act as 'medical adviser' to the patients attending. Under no circumstances will he treat cases. His duties consist in advising patients as to the nature of their disease, the necessity of proper medical treatment, the dangers of self-treatment, and the importance of obeying the directions of their physicians."

A Centenarian.—Dennis Redmond of the Borough of the Bronx, New York City, died on January 21, after having just reached the age of 100 years. He was born in Dublin, Ireland, on Jan. 1, 1814, and came to this country in 1847. Until the age of 92 he had been in the employ of a well-known men's clothing firm in New York.

QUARANTINE FOR DIPHTHERIA ON THE "ARKANSAS."—Eight hundred officers and men were quarantined on Jan. 26, aboard the United States battleship *Arkansas*, recently arrived at Brooklyn from a Mediterranean cruise with a case of diphtheria.

LEGALITY OF COMPULSORY VACCINATION.—On Jan. 23, the appellate division of the supreme court handed down a decision affirming the recent conviction of a citizen for violation of the compulsory education law in refusing to have his son vaccinated. This decision is of importance as a precedent in declaring the legality of compulsory vaccination.

SMALLPOX AT NIAGARA FALLS.—Report from Niagara Falls on Jan. 29 states that during the three weeks then ended 133 cases of smallpox were notified in that city.

Current Literature

MEDICAL RECORD.

JANUARY 17, 1914.

1 HENRY, F. P. *The Diagnosis and Treatment of Lumbosacral Pelvic Pain.*
2. STRAUCH, A. *Disorders in Children by Imitation and Induction.*
3. MANS, L. M. *Alcohol and Racial Degeneracy.*
4. MAYS, T. J. *The Therapeutic Value of Crotalin in the Treatment of Epilepsy.*
5 HANSELL, H. F. *Some Further Experiences in the Extraction of Immature Cataract by the Homer C. Smith Method.*
6. SHEEHAN, J. E. *The Case Against the Eugenists.*
7. *MACFARLANE, A. *Venesection in Cerebral Hemorrhage, with Report of Cases.*
8. WIENER, A. *A Preliminary Report upon the Specific Action of Ethyl Hydrocuprein on Pneumococcus Infections of the External Tissues of the Eye.*

7. MacFarlane extols the value of venesection in cases of apoplexy. If the blood pressure is above 200 mm., he says, this procedure is urgently indicated. It lessens the hemorrhagic effusion and allows coagulation. Prompt blood-letting may save such a patient from a permanent hemiplegia, which is worse than death. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 17, 1914.

1. HEMMETER, J. C. *Hypertonicity and Hypotonicity of the Vagus and the Sympathetic Nervous System.*
2. *GORDON, A. *The Cerebrospinal Fluid and a Special Method of Treatment of Essential Epilepsy.*
3. COCKS, G. H. *The Results of Tonsil Operations on Public School Children in New York City.*
4. HOAG, A. E. *Treatment of Wounds and Infections.*
5. ALLAN, W., AND WRIGHT, T. H. *Functional Leucorrhea.*
6. HAYNES, I. S. *Intestinal Kinks; Their Diagnosis and Treatment.*
7. CROHN, B. B. *Periodic Explosive Toxemias.*
8. BREDIN, W .W. *A New Urethrotome.*
9. DOUGLAS, C. J. *The Institutional Treatment of Drug Addiction.*
10. ALEXANDER-BOWERS, R. *Standardization of Brains.*

2. Gordon makes a preliminary report on the treatment of epilepsy with subcutaneous injections of cerebrospinal fluid from another epileptic. In four cases the writer observed striking improvement in the severity and frequency of seizures after this treatment. He also observed that the cerebrospinal fluid of each patient acted specifically (causing hemolysis) on another's blood, but not on his own. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 17, 1914.

1. SUTTON, R. L. *The Symptomatology and Treatment of Some Variant Forms of Lichen Planus.*
2. *HOUGH, W. H. *Intraspinous Injection of Salvarsanized Serum in the Treatment of Syphilis of the Nervous System, Including Tabes and Paresis.*
3. *MCCASKEY, G. W. *The Autoserosalvarsan Treatment of Syphilis of the Central Nervous System.*
4. PFAHLER, G. E. *Present-Day Danger of Roentgenray Burns and How to Prevent Them.*
5. *BREM, W. V. *Treatment of Tetanus by the "Rational" Method of Ashhurst and John. The Development of Suppurative Serum (Aseptic) Meningitis Following the Intraspinal Injection of Tetanus Antitoxin; with Report of a Case.*
6. *SPITZIG, B. L. *A New and Logical Treatment for Alcoholism. A Preliminary Report.*
7. GORDON, A. *Administrative and Prophylactic Measures Against Alcoholism.*
8. BUTLER, A. H. *The Dosage of Cocaine and Other Drugs Used for Producing Local Surgical Anesthesia.*
9. *BALLINGER, E. G. *The Elimination of Gastric Disturbance Produced by Sodium Carbonate, Iodids, Oil of Sandalwood and Similar Drugs.*
10. FOWLER, R. S. *Movable Spleen.*
11. MURPHY, J. B. *A Source of Defence to Heteroplastic Tissue Grafting.*
12. ARMSTRONG, D. B. *The House-fly and Diarrheal Disease Among Children.*
13. EBRIGHT, G. E. *The Effects of Nitroglycerin on Those Engaged in Its Manufacture.*
14. STEIN, I. F. *A Case of Oxycephaly.*
15. MOTT, W. W. *Strangulated Femoral Hernia in a Patient Aged Eighty-Three.*
16. WESSON, M. B. *Clinical Report of a Case of Rabies Treated with Neosalvarsan and Quinin, Together with a Case of Lyssophobia.*
17. HAMAKER, W. D. *A Unique Case of Bowel Obstruction.*
18. TRUESDALE, P. E. *The Sponge Count.*
19. FIGUEROA, S. *A Simple Method of Recording Vaginal Discharges.*

2 and 3. Both of these authors believe that the subarachnoid injection of salvarsanized autoserum is a safe and valuable method of treating cases of cerebrospinal syphilis, especially tabes and forms of paresis.

5. Brem quotes two interesting cases of tetanus treated by intraspinal injection of antitetanic serum in which an aseptic serum meningitis developed and from which both recovered.

6. Spitzig substitutes sugar for alcohol in his treatment of alcoholics, gradually increasing the carbohydrate and diminishing the sugar.

9. Ballinger and Elder suggest hardening in formalin the capsules in which such stomach upsetting drugs as sodium carbonate, iodids and sandalwood oil are used. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

NOVEMBER, 1913.

1. *LIBMAN, E. *The Clinical Features of Cases of Subacute Bacterial Endocarditis That Have Spontaneously Become Bacteria-free.*
2. *FOSTER, G. B. *The Noguchi Luetin Reaction in Syphilis.*
3. *DA COSTA, J. C. *Dorsal Percussion in Enlargements of the Tracheo-bronchial Glands.*
4. *SMITH, A. J., LYNCH, K. M., AND RIVAS, D. *The Transmissibility of the Lepra Bacillus by the Bed-bug (Cimex Lectularius L.).*
5. KLOTZ, O. *Syringomyelia: with Autopsy Findings in Two Cases.*
6. *THOMAS, B. A. *Modern Genito-urinary Diagnosis and Treatment, with Reference Especially to Laboratory Methods.*
7. *WARREN, L. F. *An Orthodiagraphic Study of a Case of Bronchial Asthma.*
8. CAMP, C. D. *A Contribution to the Study of Hereditary Degeneration (Pseudohypertrophic Muscular Dystrophy in Combination with Degeneration in the Central Nervous System).*
9. HOPKINS, A. H. *Two Instances of Chronic Family Jaundice.*
10. *STETTEN, DE W., AND ROSENBLOOM, J. *Clinical and Metabolic Studies of a Case of Hypopituitarism Due to Cyst of the Hypophysis with Infantalism of the Lorain Type.*
11. VERBRYCKE, J. R. *The Diagnosis of Gastric Ulcer.*

1. Libman reports an analysis of the clinical features of 21 cases of subacute bacterial endocarditis that spontaneously became bacteria-free. In 17 of the 18 cases that had died at the time of publication autopsies were performed, proving that the condition under discussion was present. The duration of the disease may be as long as two and a half years before death, and a few cases appear in literature that are reported to have survived. In most cases the early symptoms were cardiac in nature, but in some, uremia was rather suggested. Fever was less prominent than in the bacterial cases. Evidence of valvular lesions was present in all, but no new lesions are believed to have developed in the bacteria-free stage. Anemia was present in all, and in many cases was extreme. The spleen was palpable in all but four, and in some cases was enormously enlarged. Sweats and loss of weight were less prominent than in the bacterial cases. Embolism was as common as in the bacterial cases. Progressive brown pigmentation of the face was a striking symptom in nine cases and was seen to a marked degree only in the bacteria-free cases. The cases as a whole are separated into five groups according to their most conspicuous features: Marked progressive anemia, brown pigmentation of the face, marked evidence of renal disease, marked enlargement of the spleen, or embolic symptoms.

2. Foster reports the following results with the Noguchi luetin reaction: Of 13 cases of secondary treated syphilis, 77% were positive. Of 5 cases with tertiary lesions 80% were positive. Of 52 cases of syphilis in the stage of latency or cure, 88% reacted. Of 5 individuals presumably free from syphilis one reacted—a man in whom infection seemed highly improbable, but whose maternal grandmother was believed to have had tabes. It is concluded that the luetin test is of value to supplement the rôle of the Wassermann reaction, the latter being of greatest value in the earlier stages and the former in the tertiary and latent stages. Its prognostic value in determining whether the infection has been eradicated is emphasized.

3. De Costa's article is a reiteration of his belief in the value of light percussion over the thoracic vertebral spines in the diagnosis by the presence of dullness of enlargement of tracheo-bronchial glands or other mediastinal tumors.

4. Smith, Lynch and Rivas publish evidence that bed-bugs may take up the lepra bacilli with blood; that within the bugs for a time the bacilli increase in size and apparently in numbers, but eventually disappear; that the bacilli are found in the glands as well as in the alimentary canal of the bugs; that bed-bugs acquire lepra bacilli from leprous human subjects; and that they may transmit the bacilli to the skin of an animal bitten. The authors conclude, however, that if bed-bugs really do transmit the disease they are only one of a number of possible conveyers.

6. Thomas's article is one too comprehensive for profitable review, being rather an enumeration than a description of the many procedures now applied to the diagnosis and treatment of the male genito-urinary apparatus in all its divisions. Its perusal, however, brings strikingly to mind to what an extent bacteriology, serology, cystoscopy, radiography and chemistry have advanced and complicated the subject.

7. Warren reports that fluoroscopic study of a case of bronchial asthma showed that the pulmonary distention continued for several weeks after the cessation of a prolonged attack, the heart maintaining a vertical position. During the attack the diaphragm moved but slightly, and in movements in reverse of the normal.

10. Stetten and Rosenbloom report upon results of metabolism experiments in a marked case of hypopituitarism. Of chief note was the finding of high and abnormal percentages of the neutral sulphur and of the undetermined nitrogen in the urine. [F. W. P.]

DECEMBER, 1913.

1. *WILSON, L. B. *The Pathology of the Thyroid Gland in Exophthalmic Goiter.*
2. *PLUMMER, H. S. *The Clinical and Pathological Relationship of Simple and Exophthalmic Goiter.*
3. *BLACKFORD, J. M., AND SANFORD, A. H. *A Demonstration of a Depressor Substance in the Serum of the Blood of Patients Affected with Exophthalmic Goitre.*
4. *RUSSELL, F. F. *Antityphoid Vaccination.*
5. CHURCHMAN, J. W. *Cutaneous Manifestations of Septicemia.*
6. TAYLOR, A. S. *Conclusions Derived from Further Experience in the Surgical Treatment of Brachial Birth Palsy (Erb's Type).*
7. *EINHORN, M. *Further Experience with Stretching the Pylorus.*
8. *BRILL, N. E., AND MANDELBAUM, F. S. *Large-cell Splenomegaly (Gaucher's Disease): A Clinical and Pathological Study.*
9. MOLEEN, G. A. *Metallic Poisons and the Nervous System.*
10. PEMBERTON, R. *The Metabolism, Prevention, and Successful Treatment of Rheumatoid Arthritis: Second Contribution.*

1 and 2. The papers of Wilson and of Plummer are the result of studies of the large material of the Mayo Clinic. In a previous report, Wilson showed that among thyroids removed from toxic goiter cases pathologically the glands were divided between two distinct types. Clinical studies carried on with Plummer have now led to the conclusion that toxic goiter cases may be divided into two classes, the exophthalmic and the non-exophthalmic. It is now shown that of 1208 cases of toxic goiter, 79% had glands showing primary hypertrophy and hyperplasia, and practically without exception had the clinical features of true exophthalmic goiter. The remaining 21% of the cases had goitres showing either regenerations or adenomas, and none of these were grouped clinically as true exophthalmic goiter.

3. Blackford and Sanford report evidence that fresh extracts made from exophthalmic thyroids contain a powerful depressor substance, and that a powerful depressor substance likewise exists in the blood

serum of cases of exophthalmic goitre in direct proportion to the clinical acuteness and severity of the diseases. The sera of patients with non-hyperplastic thyroids, on the other hand, do not have a depressor action. After an active depressor dose of serum from a case of exophthalmic goiter the depressor action of the extract of an exophthalmic goitre is weakened or abolished, and the converse of this is also true.

4. Russell's article is a careful summary of the evidence upon which the efficacy of antityphoid vaccination is based. Those interested in the details of this subject will do well to consult this work.

6. Taylor reviews the etiology of brachial birth palsy, and protests that contrary to common teaching the prognosis under expectant treatment is exceedingly bad. It is, moreover, aggravated by the fact that the deformity, at first functional, later becomes fixed by secondary organic pathological changes. From his experience with 43 operated cases he is convinced that the prognosis is much improved in cases treated surgically. The operation consists of incision through the skin and fat at the base of the neck, suture of ruptured nerves, fixation for a period, and then careful passive and later active motion. The time of choice for operative interference is from two weeks to three months after birth.

7. Einhorn describes cases of pylorospasm and of stricture of the pylorus treated by instrumental dilation, according to his method previously published. This method is not supported as a substitute for surgery, but is advocated in functional cases and in cases where surgical interference cannot be applied.

8. Brill and Mandelbaum discuss at length the condition known as Gaucher's disease, of which but 14 proved cases are recorded in the literature. The disease occurs chiefly in childhood and often in more than one member of the same family. Its features are a progressive enlargement of the spleen and later of the liver, to an enormous size, with a brownish yellow discoloration of the skin of the face, neck and hands, and a yellowish thickening of the conjunctivae. It has a prolonged course, which does not materially disturb the health of the patient. The blood shows a definite leukopenia. The pathological feature is the presence in the spleen, liver, lymph-glands and bone marrow of distinctive large cells of unknown origin, to which the enlargement of the liver and spleen is due. [F. W. P.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 52. DECEMBER 30, 1913.

1. *GERHARDT, D. *Pain Referred to the Shoulder in Pleurisy.*
2. MAYER, W. *The Specificity of Abderhalden's Protective Ferments.*
3. TUSZEWSIK. *"Elarson."*
4. *ROEMHELD, L. *Modern Obesity Cures.*
5. RAUENBUSCH. *Filariasis of the Eye.*
6. GRÄF, E. *A Forgotten Obstetrical Manoeuvre.*
7. V. SCHUBERT, E. *Serum as a Vehicle for Neosalvarsan.*
8. V. HERFF. *Improved Serres Fines.*
9. KOCH, R. *The Preservation of Serum from Convalescent Scarlet Fever Patients.*
10. TRAUTMANN, G. *A Plastic Variation in Extracapsular Extirpation of the Tonsils.*
11. RAUTENBERG, E. *The Recording of Auricular Tracings in Man.*

1. It is recognized that the symptom of pain in pleurisy may be referred to the abdomen, neck or to the shoulder joint. The abdominal pain is usually explained as being due to a sympathetic stimulation of those intercostal nerves whose roots originate in the same region as the nerves supplying the injured pleura. Less attention has been paid to pain referred to the shoulder joint. Gerhardt reports four cases of different types of pleurisy with such pain. It was so severe in two cases that the diagnosis of arthritis was made. He explains the symptom as being a reflex stimulation of those peripheral nerves whose fibres originate in the same spinal segments as the sensitive fibres of the phrenic nerve.

4. The methods in use for ridding patients of excessive fat are by dietetics, by physico-mechanical means, or by medicines. Bergioné's electrical instrument has received much attention lately, and Roemheld has conducted experiments to determine its value. His conclusions are that Bergioné has merely offered a passive means of muscular exercise to substitute active exercise during the time of the cure. The use of the machine alone produces no definite loss of weight, and it is only effective when a dietetic cure is undertaken at the same time. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 47. NOVEMBER 24, 1913.

1. KRAUSE, F. *An Unusual Tumor of the Cerebellum, Cured by Operation.*
2. *UNGER, E. *An Operation for Aneurysm with Vessel Transplantation.*
3. MANKIEWICZ. *Hemorrhage into the Joints in Hemophilia.*
4. SKALLER. *Our Methods of Studying the Secretion of Gastric Juice and the Plotting of the Same in Curves.*
5. *HUBER. *The Effect of Splenectomy in Pernicious Anemia.*
6. THEOBALD, M. *The Application in Psychiatry of Abderhalden's Methods of Serum Diagnosis.*
7. SCHEKER, A. *Practical Experiences with Abderhalden's Pregnancy Test.*
8. MÜLLER, R., AND STEIN, R. O. *Observations on the Skin Reaction in Syphilis and Its Relation to the Wassermann Test.*
9. HAHN, B., AND KOSTENBADER. *A Contribution to the Explanation of the Action of Mercury in Syphilis.*
10. WECKOWSKI. *A Dosage Table for Giving Radium or Mesothorium.*
11. GERBER, O. P. *The Treatment of Bronchial Asthma with Dr. Bayer's Vibro-inhalation Apparatus.*
12. RAUCH, R. *The Introduction of Heyden's "Noviform" in the Treatment of Diseases of the Eye.*
13. WEGELIN, C. *The Relation of Fatty Degeneration of the Heart to Diet. (Concluded.)*
14. LANDSBERGER, R. *A Suction Syringe.*

2. The author presents one case in which he resected the popliteal artery for aneurysm and grafted in a piece of the saphenous vein of the same leg, 15 cm. long, with a perfect result. In a second case he resected an arterio-venous aneurysm between the femoral artery and vein, sutured the cut ends of the vein and grafted in a 10 cm. section of the saphenous vein to connect the ends of the artery. This case also was successful. A third case in which he attempted the same procedure for popliteal aneurysm was unsuccessful. Unger is very enthusiastic over this method of treating aneurysm.

5. The author reports a case of pernicious anemia showing amelioration of symptoms and also improvement in the blood picture following splenectomy. Contrary to the generally accepted teachings he unhesitatingly recommends this treatment where other therapeutic measures fail. [R. H. M.]

No. 48. DECEMBER 1, 1913.

1. HERXHEIMER, K., AND KÖSTER, H. *Some Therapeutic Experiments with Pilocarpine Hydrochloride in Parapsoriasis.*
2. MENZER, A. *Rheumatism and Tuberculosis.*
3. WEIHRAUCH, K. *The Use of Camphor as an Antipyretic in Tuberculosis of the Lungs.*
4. *STRAUSS, H. *Fluorescein as an Indicator of Renal Function.*

5. *GLASER, F. *Erysipelas in Nephritis, and Its Therapeutic Effect.*
6. PAKUCHER. *The Treatment of Infectious and Post-gonorrheal Urethritis with Lytinol.*
7. HART, C. *The Occurrence of Anomalous Cavernous Plexuses in Place of the Portal Vein.*
8. KIRSCHNER, M. *On the Cause of Bleeding in Hemorrhoids.*
9. KERN, H., AND MÜLLER, E. *A Simplified Method of Making Eiweissmilch.*
10. FOERSTER, R. *The Expert Opinion in a "Telephone Accident" in the Imperial Court, Berlin.*

4. The author's method of using fluorescein is to give one gram by mouth in the morning; to estimate roughly the time of appearance by having the patient void every few minutes; and then at the end of thirty hours have the patient void once an hour till the fluorescence no longer appears in the urine. The test is done entirely with the eye, as the only points to be observed are the time of appearance and the end-point of the excretion. The urine should be made alkaline. Normally the drug appears in from ten to twenty minutes and is all excreted in from thirty-five to forty hours. If the total excretion takes between forty and 50 hours the renal capacity is suspicious, over fifty hours the author considers pathological. This is only a rough test, but in a few cases it has run parallel to other functional tests—phthalein, and potassium iodide. About thirty cases were tested in all, and so far as described in this article fluorescein does not seem to be so useful as phenolphthalein.

5. Glaser reports the case of a boy of twelve with severe subacute nephritis, with edema, ascites and hydrothorax, in whom an extensive erysipelas of the trunk and thighs was followed by a complete clinical cure of the nephritis, the urine showing neither albumin or sediment. He has collected four other cases, from the literature, of chronic nephritis being apparently cured in the same way. He advances two theories to explain these cases—first, that the erysipelas gave rise in the body to fresh streptococcus antitoxins which influenced favorably renal lesions caused by streptococcus toxins; and, second, that favorable circulatory changes might have been brought about in the kidney by the intense hyperemia of the skin. [R. H. M.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

NOVEMBER 28, 1913.

1. *SCHOTT, E. *Investigations upon a Complete Parenteral Nourishment.*
2. *EISNER, G. *Influence on Renal Function of Man of Calcium Salts.*
3. MEYER-BETZ. *Investigations upon the Biological Effect of Hematoporphyrin and Other Derivatives of Blood and Biliary Coloring Matter.*
4. VEIL, W. H. *Clinical Importance of the Determination of Blood Concentration.*
5. KOSSOW, H. *The Liver and Formation of Acetone Bodies.*
6. GANTER, G. *Analysis of Electrocardiograms. (Examinations of Warm-Blooded Hearts in Situ.)*
7. v. HOESSLIN, H. *Clinical Roentgenological Investigation of Pulmonary Cavities by Fluid Level.*
8. KOPPEL, M. *The Fluid Absorption of Organic Tissue with Different Hydrogen Ion Concentration.*

1. In this article Schott takes up the question of preservation of life by means of injection of nourishment directly into the circulation rather than by absorption through the alimentary tract. He has studied the effect of such injections from many points of view and reports his findings here. His work has been in good part experimental. He concludes that rabbits and dogs can be held in nitrogenous equilibrium by injection of egg yolk and salt solution up to the appearance of anaphylactic phenomena. This albumen will only in a small percentage be present in the urine as coagulable albumen. Most of it is burnt in the organism. The fat so introduced disappears from the circulation in about 1½ hours and is apparently used as nourishment. Carbohydrates introduced intravenously as dextrose appear to offer the means for burning albumen in the organism just as when introduced through the digestive tract. The anaphylactic appearances occur about on the fourth or fifth day with rabbits and at the fourteenth day with dogs.

2. Eisner has studied the effect of calcium salts upon the renal function in man. As a test for renal function he has studied iodide excretion. Milk sugar excretion, sodium chloride excretion, nitrogen excretion, phenolsulphonephthalin excretion and water excretion, as well as the excretion of calcium salts. He used calcium lactate as his calcium salt. In only one case in any of the functional tests was there any improvement after calcium. In others no improvement or a diminution of function. He feels that although calcium may not help renal function it may still be of some value in certain renal conditions, just as atophan aids the permeability of the kidney for uric acid. [C. F., JR.]

Miscellany.

RELATIVE SIZE OF AMERICAN UNIVERSITIES AND MEDICAL SCHOOLS IN 1912 AND 1913.

IN a recent issue of *Science* are tabulated the registration returns for Nov. 1, 1913, of thirty of the leading universities of the United States. Of these only three,—Harvard, Western Reserve, and Yale,—show a decrease in numbers from 1912. The order of size of the thirteen largest universities in 1912 was Columbia, California, Chicago, Harvard, Michigan, Cornell, Wisconsin, Minnesota, Pennsylvania, New York, Illinois, Northwestern, and Ohio. In 1913 these thirteen remain in the lead, but their order is changed as follows: Columbia, California, Chicago, Michigan, Pennsylvania, Wisconsin, Harvard, Cornell, New York, Illinois, Ohio, Minnesota, and Northwestern. In number of undergraduates, however, Harvard still stands first, and is followed by California and Michigan. Among the medical schools the order of size in 1913 is Illinois, New York, Tulane, Johns Hopkins, Michigan, Columbia, and Harvard.

FIRST NATIONAL CONFERENCE ON RACE BETTERMENT.

FOUR hundred men and women of prominence, comprising the first representative group of scientific experts ever gathered in America for that purpose, met in Battle Creek, Mich., Jan. 8-12 to assemble evidence of race deterioration and to consider methods of checking the downward trend of mankind. The meeting was known as the First National Conference on Race Betterment. Through the coöperation of the press, the objects and aims of the Conference

have been very widely disseminated and a resultant influence for better race ideals is anticipated.

Already the effect of the Conference is apparent in Battle Creek, where popular interest in mental and physical efficiency was awakened by a series of public school tests which showed an alarming percentage of defective children in all grades.

The conference had its inception in the efforts of four men, particularly interested in race betterment—Rev. Newell Dwight Hillis, pastor of Plymouth Church, Brooklyn, N. Y.; Dr. J. H. Kellogg, of the Battle Creek Sanitarium; Sir Horace Plunkett, former minister of agriculture for Ireland; and Prof. Irving Fisher of Yale University. At the invitation of a central committee, chosen largely by these men, fifty men and women of national prominence in the fields of science and education, consented to share in the program. Their addresses, together with open discussion of many of the points considered, constituted a very widespread study of all phases of evident race degeneracy and the advocacy of many ideas of reform. Some of the suggested methods of improvement are frequent medical examination of the well, outdoor life, temperance in diet, biologic habits of living, open air schools and playgrounds, the encouragement of rural life, the segregation or sterilization of defectives, the encouragement of eugenic marriages by requiring medical certificates before granting license and the establishing of a eugenics registry for the development of a race of human thoroughbreds.

Correspondence.

INFECTION IN TUBERCULOSIS.

Mr. Editor: My attention has been called from several sources to an article in the *Christian Science Monitor* of Jan. 24, 1914, which purports to present my ideas as to infection in tuberculosis. The article mentioned quotes only a part of a paragraph relating to the subject and which was quoted in an editorial by the *Journal of the American Medical Association* in a recent issue. (Jan. 3, 1914.)

The part which they quoted was so used as to give the impression that I did not believe tuberculosis was infectious. As a matter of fact it was intended to explain the well-known belief at present that childhood is the time of infection, and that more protection ought to be given for children and more hygiene for adults. A reference to this editorial would make this entirely clear.

The original paper related to the fact that a certain degree of immunity is acquired by adults by small infections occurring in early life which gave them more or less immunity against infection later. It was in no way stated that tuberculosis was not infectious nor should I be misrepresented in this way. Not only do I believe tuberculosis to be infectious,—and especially so for persons who have not been protected by mild infections in childhood,—but chiefly from the open case of tuberculosis is the danger very great in the home where small children come in contact with the patient. On no account do I oppose the movement for the segregation of the open tuberculous, but my plea was for more reasonableness in the attitude of adults as to their own danger. I am strongly in favor of all the measures which are aimed to protect the public and to care for all classes of tuberculous patients. It is extremely wrong and I am greatly chagrined that my statements should be used to represent any other idea. I am

Respectfully yours,

EDWARD R. BALDWIN, M.D.

MEDICAL CORPS, U. S. NAVY.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ending January 24, 1913:

January 16, P. A. Surgeon B. H. Dorsey, detached: Camp Elliott, Canal Zone, to *Connecticut*.

SOCIETY NOTICES.

The next meeting will be held on Tuesday evening, February 10, in the amphitheatre of the Peter Bent Brigham Hospital at 8.15 o'clock. Program:

"Exhibition of Cases," Dr. A. Luger. "Spastic Conditions of the Stomach," Thomas Ordway, S. F. Hammett, Wm. J. Kerr. "The Effects of the Surface Applications of Radium over the Spleen in a Case of Chronic Lymphatic Leukemia," Dr. William Duane.

Remarks on the Surgical Properties of Radium and Its Derivatives.

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

HOSPITAL MEETING: MASSACHUSETTS GENERAL HOSPITAL.

The next hospital meeting will be held at 8.15 p. m. on Feb. 13, 1914 in the lower amphitheatre of the Out-Patient Department. The subjects are to be as follows:

1. "Causes of Scoliosis," by Dr. Z. B. Adams.
2. "Back Pain and Its Diagnosis," by Dr. Harry Platt.
3. "X-ray Diagnosis of Lesions of the Lumbar Spine and Sacro-iliac Joint," by Dr. C. Hermann Bucholz.
4. "Use of Plaster Backs in Post-operative Backache," by Dr. John McCartin.

APPOINTMENTS.

DR. EARL H. MACMICHAEL has recently been elected city physician and DR. WALTER W. KINGSBURY a member of the board of health of Malden, Mass.

DR. HARRY E. SEARS of Beverly, Mass., has been comfirmed as Associate Medical Examiner of Essex County.

RECENT DEATHS.

DR. JAMES HARVIE DEW of New York died from cerebral apoplexy on January 26, at the age of 70 years. He was a native of Newtown, Va., and served for a time in the Confederate Army. He was graduated from the medical department of the University of Virginia in 1867, and afterwards was an interne at the Charity (now City) Hospital, New York. Dr. Dew won for himself a very large clientèle, especially among the southern families living in New York. He was one of the most genial of men, and his death will be sincerely mourned by a host of patients and friends.

BOOKS AND PAMPHLETS RECEIVED.

Leitfaden der Säuglingskrankheiten für Studierende und Ärzte von Dr. Walter Birk. Bonn, 1914. A. Marcus & E. Webers Verlag.

Original Articles.

OBSERVATIONS ON PEPTIC ULCERS.*

BY CHRISTOPHER GRAHAM, M.D., ROCHESTER, MINN.

INTRODUCTION.

IN this paper are presented notes on all cases of duodenal and gastric ulcers operated on in the Mayo Clinic during the years 1906 to 1911, inclusive; and our observations on diagnosis and statistics are based upon a study of the clinical records and operative findings.

It is often difficult, and it may be quite impossible, to differentiate, clinically, gastric and duodenal ulcers, from other lesions causing gastric symptoms. It is often quite as difficult and it may also be impossible to locate the lesion in the stomach or duodenum if we have only the clinical picture to point the way. The symptoms of duodenal and gastric lesions may give exactly the same clinical picture, and for this reason we cannot at all times be definite when we attempt the localization of the ulcer. The radiogram gives the clinician aid in these cases, and at times not only locates the lesion, but makes positive the diagnosis in some cases with irregular histories. However, the clinical history is still our greatest factor in the differentiation of lesions causing gastric disturbance, and we should consider it carefully in all its phases.

The various types of ulcers as observed in our clinic are almost wholly chronic in character, the acuteness or subacuteness depending more or less on acute exacerbations, *i.e.* inflammation, infiltration, edema or perforation.

In discussing the diagnostic features of duodenal and gastric ulcers we should consider, first, the periodicity of the attacks; second, the chronic course; third, the significant symptoms that appear during the period of attack; and, fourth, the more or less ready control of symptoms, *e.g.* pain.

(1) *Periodicity of attacks* is almost constant in the duodenal and pyloric types of ulcers in which complications are not far advanced. When a patient presents himself with a history of attacks of gastric disturbance occurring day after day for several days or weeks, followed by remissions, or intermissions of weeks or months of perfect health, one strongly suspects an ulcer. The onset of attacks often comes without apparent cause. However, close application to hard work, worry, anemia, exposure and infection may be important contributing factors. During attacks the patient complains of pain, gas, sour regurgitations and vomiting, coming regularly after meals, and more or less controlled by food. This identical picture is presented each day during the period of attack. Intermissions occur of complete relief for days, or, if the ulcer be situated high up, a remission may be experienced, if not a complete period of ease. These attacks and intermissions alternate for years with "spring and fall" influence often noted. They increase in frequency, number and severity until the patient seeks relief in treatment. Such a history of periodicity is often quite enough in itself to warrant a probable diagnosis of ulcer.

(2) *Chronicity.* The patient rarely fails to emphasize the fact that these distressing symptoms have been coming and going for many years until finally he is forced to seek relief. The symptoms have remained the same in character, but have increased in length of period and intensity, until some complication has arisen to disturb the characteristic course. In general, the cases observed in our clinic have covered a course of many years, few less than one, the greater number falling between five and twenty years, the average being from eleven to twelve years. When we consider the average long series of years the symptoms have existed, with the distress always increasing and, as years go by, with invalidism increasing and often becoming quite complete, it seems strange, not that so many patients have been urged to seek relief in surgery, but rather why surgical measures were not urged earlier, at least on the appearance of symptoms indicating that the medical borderline had been passed. In our series, this history of prolonged attack with intermission or remission covering years was clear in 85% of the cases, and is a factor to be taken into serious consideration.

(3) *Pain.* During the period of attack, pain is the most constant symptom (pain or distress, 95%) and it is characteristic in its manifestations. The location of the pain, its type and its area of radiation are of secondary diagnostic significance: (*a*) because most pain is described as epigastric regardless of the location of the lesion causing the gastric syndrome; (*b*) because the pain complained of varies from mild distress, burning, griping or colic to a severe type requiring opiates for relief; and (*c*) because radiation is not common in uncomplicated ulcers and because if a clear-cut radiating pain to the back occurs, as in some posterior perforating ulcers, or if the radiation is to the lower abdomen, cholecystitis or appendicitis may be inferred. Thus our diagnosis may be clouded rather than cleared by the radiation.

(4) *Time and Control of Pain.* It is the time of pain and the control of pain that are characteristic and diagnostic. The time of its appearance, the time and manner of disappearance, and its control by food, alkalies, position and rest (vacation) are quite conclusive evidences for a correct diagnosis. Pain appears after meals, or in clear-cut duodenal types two hours before meals. It usually comes one-half to four hours after eating, depending in a measure on the location of the lesions. The nearer to the gastric outlet the

* Read before the Kalamazoo Acad. of Med., Dec. 9, 1913.

longer the period of food-ease is the rule. A burning, gnawing, painful feeling begins sooner or later after meals, following a definite type in each case, increasing in severity and continuing until the stomach empties, and pain ceases before the time for the next meal or continues up to meal time. The early cessation of pain is noticed most often in the histories of ulcers occurring above the pylorus. The pain, beginning later (two to four hours) as in purely duodenal types, may continue until vomiting, irrigation, alkalies, or the next meal brings relief. Food relieves pain, gas and acidity in a large percentage of cases (76%). This relief lessens as the pathologic lesion extends, and in the late stages little or no ease comes from food. Indeed, when complications, such as perforations, adhesions, and obstruction, are far advanced, food usually gives immediate pain, and only forced vomiting and irrigation afford relief. Alkalies are less efficient at this time than in the earlier stage.

The pain and accompanying symptoms then appear in definite periods of attack. They come daily, often two or three times a day at a definite time after ingestion of food during the entire period of attack. The onset of symptoms varies from one-half to four hours after meals, and they are oftener premeal than after-meal. The pain is epigastric, seldom radiating to other areas, and except in the later stages is relieved in part or fully by food, drink, alkalies, vomiting or irrigation.

What, then, are the typical diagnostic symptoms of peptic ulcer? (1) The period of attacks and perfect intermission or marked remission of attacks; (2) the almost exact similarity of symptoms occurring for days during the period; (3) the marked relation of symptoms to food intake (one-half to four hours); (4) the control of symptoms by food, alkalies, lavage, posture and rest.

The types of cases in which it is particularly difficult to reach a correct diagnosis, or in which it is quite impossible to differentiate from other lesions causing gastric symptoms may be divided into four groups:

Group 1. This group comprises those patients with ulcers who give the classic symptoms of gall-stones, and in whom no other gastric symptom can be elicited. In this group there may be perforations, or, the pain may be due to acidity and accompanying spasm. The lesions are usually chronic and may be located at any point in the stomach or duodenum. At operation, perforation has been found in about one-third of this group (35% duodenal, 29% gastric) and in some of these, at least, the pain has not been more intense than in those not found perforated at operation. Severe pain may be complained of and no perforation be evident. Patients with this symptom-complex constitute about 5% of all the cases. In them the diagnosis of gall stones is the only logical one to be made. Careful clinical research and radiography should lessen our errors.

Group 2. In this group may be found patients in whom the ulcer must have been latent for weeks or months, and whose first manifest symptoms were those of chronic ulcer with complications (hemorrhage, perforation, etc.). The symptom-complex in these cases is irregular and quite excludes the pathognomonic picture of ulcer.

Group 3. In these cases the present chronic symptoms are very severe. The early symptoms were so mild that they may have been quite forgotten or overlooked by the patient. Many such patients will not allude to the early trouble unless carefully questioned, because nothing is of so much importance to them as the present, or recent years of distressing pain.

Group 4. In the fourth group are those patients whose symptoms are of a more or less malignant type—marked loss of flesh and strength, pain or distress quite continuous, gas rather annoying and vomiting of large amounts at irregular periods. The vomitus consists of food, fairly macerated, perhaps dark, coffee-ground color and the liquid quantity quite in excess of fluid ingested. If to these symptoms is added the presence of tumor, we are inclined to err in diagnosis and consider cancer first. Three per cent. of all ulcers in this series were diagnosed cancer. Five per cent. had gross tumors, three per cent. more or less feel of ridge.

The cases in these groups may be variously diagnosed as acute or chronic gall-stone disease, gastric ulcer, chronic appendicitis, tuberculous intestinal involvement or cancer, in accordance with the variation of the symptoms. Here, too, by a more careful attention to clinical histories and more frequent use of the Roentgen ray we should materially lessen our errors.

In diagnosing atypical cases, one should take into consideration the variations in symptoms. The following groups suggest themselves:—(1) Those cases of a clear-cut gall-stone type. (2) Those which were chronic and complicated since the first symptoms appeared, *i.e.*, chronic ulcers long latent. (3) Those in which the ulcer is high on the gastric wall and tends to continuous symptoms without food ease; and (4) Cardiac ulcer usually with but slight symptoms until obstruction appears. However, the general picture is so clear that 80% of all ulcers may be followed closely enough to establish an accurate clinical diagnosis, and a probable diagnosis may be consistently made in the remainder.

Ulcers of the duodenum and pyloric area without complications are usually so clear-cut in their symptomatology that they may be diagnosed with little trouble. Ulcers located higher up may simulate the duodenal type closely and be thus diagnosed, or they may vary in symptomatology just enough to be atypical, yet be clearly gastric.

Other things being equal, the histories of uncomplicated types of duodenal and pyloric ulcers are clean-cut throughout the entire symp-

tomatology. The longer the period between food intake and onset of symptoms, the lower the ulcer as a rule. The more prompt the food ease and cessation of symptoms, the lower the ulcer. In ulcer of the stomach proper, the attacks are not so clear-cut as in duodenal and pyloric types, nor are the day-by-day symptoms so clearly defined. In those well above the pylorus the symptoms are apt to be continuous for longer periods, or remissions rather than free intervals are apt to be noted. These symptoms are not so often eased by food, or small amounts of food may give relief, while increased food may give distress. More care in diet is necessary. Soda relieves when food does not. Pain begins earlier as a rule, oftentimes disappearing before the next meal, and thus the food relief feature is minimized, but pain ½ to 1 hour after food, is quite the rule, and is of great diagnostic significance.

A gnawing sensation coming regularly when the stomach is empty, is almost "hunger pain." In such instances the effect of food may be translated as distress-producing, though it relieves the gnawing. Radiation of pain and the area of complaint are considerably more extensive in gastric than in duodenal types.

Vomiting in gastric ulcer is rather more common than in ulcers of the duodenum and pylorus unless complications, *e.g.*, obstruction, are present. Also vomitus containing food is more apt to come sooner, hence it is not in so advanced a stage of digestion. Blood is more frequent in the vomitus of cases of the gastric type.

In those conditions which oftenest cloud the diagnosis, such as chronic gall stones, chronic appendicitis, etc., we obtain our greatest diagnostic aid from the wide irregularity of symptoms during the period of attack. Yesterday's pain came before meals, today's pain after meals, tomorrow's pain an all-day "miserable feeling." Food-ease yesterday because fasting the previous day, today food pain wholly reflex; vomiting one day and gas another; yesterday well, today in the depths mentally. Nothing follows in sequence day by day, because the stomach behaves properly unless irritated by the distant lesion and this extrinsic lesion is irregular in its influence. The stomach then delivers what symptom it may when the irritation is great enough.

If attacks of "indigestion" occur, which are not quite clear-cut, if during the attack there is lack of regularity of symptom, if the pain be somewhat continuous, if remissions, even, are not marked, if together with the gastric symptoms of distress, gas, bloating, sour regurgitations or vomiting, continuing for a few days, to longer periods; and if each day the symptoms quite nearly repeat those of the day before; if some relation to food be observed; if the symptoms come on ½ to 1 hour or more after meals, if alkali or irrigation gives relief—if these conditions prevail, we may safely exclude from the diagnosis everything but peptic ulcer. Added to this, if we obtain a history of partial and fairly constant food relief, we may be quite sure of our diagnosis. In locating the ulcer, one may be aided by the field of radiation, as when it is high and well to left, or when there is perforation at any point. The patient's interpretation of pain and of the field of radiation is often perplexing. Localization by means of tender abdominal pressure-points is not wholly satisfactory, partly perhaps because of the varying positions of the stomach. The Roentgen-ray helps in many perplexing cases and promises even greater aid in the near future.

However, the greatest benefit to be derived from a diagnosis does not come from exact localization of the ulcer, but rather from the diagnosis of a lesion, and determining the patient's needs as to treatment, in the light of the available symptoms. Whether or not a patient be advised to undergo medical or surgical treatment often depends upon our viewpoint and is a theme for discussion by itself. Cases complicated with obstruction, hour-glass contraction, perforation and hemorrhage are conceded as being surgical. Patients suffering from oft-repeated or continuous attacks and whose usefulness or pleasure in life is greatly diminished thereby, certainly should be given the relief afforded by surgery, even though the above complications are not present.

STATISTICS.

The following statistics are based on the reports received from 600 cases of duodenal and gastric ulcer out of a total of 816. The shortest period since operation in these cases is now nearly two years.

Of all the patients with ulcer operated on during the years 1906-1911 inclusive, 76% were males and 24% were females. Of the males, 70% of all ulcers were duodenal or involved the duodenum. Of the females, 60% of all ulcers were duodenal or involved it.

Out of a total of 567 cases of duodenal ulcer operated on during a period of 6 years (1906 to 1911), information has been received concerning 438. The classified results of these data are as follows: 307 or 70% cured, 79 or 18% much improved, 40 or 9% fair, and 12 or 3% unimproved. A percentage therefore of 88 were cured or much improved. In 440 of the cases, the ulcer was confined to the duodenum. Of these 337 were heard from: 70% were cured, 16% much improved, 11% fair, and 3% not improved. In the remaining 127 cases, the ulcer extended to or involved the pylorus, and of these 72% were cured, 24% much improved, 3% fair, and 1% unimproved. That is, eighty-six per cent. of the former were cured or had made satisfactory improvement, whereas, in the latter group, in which the lesion was more extensive, 96% were cured or much improved. The results are summarized in the folowing table.

TABLE I.

ULCER

	Duodenum.	Duodenum. Involving Pylorus.	Total.
Number operated on	440	127	657
Number reporting	337	101	438
Cured	70%	72%	70%
Much improved	16%	24%	18%
Fair	11%	3%	10%
Not improved	3%	1%	2%
Cured and much improved	86%	96%	88%

There were 249 cases of gastric ulcer and reports were received from 162. These were grouped according to their situation: (1) 52 in or at the pylorus (pyloric ulcer), and (2) 197 in other parts of the stomach (principally the lesser curvature). Taken collectively, 95 or 59% of this series were cured, 35 or 22% were much improved, 21 or 13% fair improvement and 11 or 7% unimproved. Therefore, 80% were either cured or much improved, 93% were benefited and 7% not improved. Tables II. and III. show comparative results in this series.

TABLE II.

ULCER

	Pyloric.	Stomach.	Total.
Number operated on	52	197	249
Number reporting	37	125	162
Cured	51%	61%	58%
Much improved	27%	20%	22%
Not improved	3%	8%	7%
Fair	19%	11%	13%
Cured and much improved	78%	81%	80%
Benefited	97%	92%	93%

TABLE III.

COMBINED RESULTS.

ULCER

	Duodenum.	Gastric.	Total.
Number operated on	567	249	816
Number reporting	438	162	600
Cured	70%	58%	67%
Much improved	18%	22%	19%
Fair	9%	13%	10%
Not improved	3%	7%	4%
Cured and much improved	88%	80%	86%
Benefited	97%	93%	96%

Clinical observation goes to prove that the more advanced the obstruction at the pyloric end, other things being equal, the better is the result following gastrojejunostomy, and conversely, it is equally true that those cases with slight or no obstruction are to some degree less benefited by the operation. In the latter instance this result has been explained on the theory that the pylorus remains open and a portion of the food with its irritating, though perhaps normal acids, continues to pass by way of the natural channel coming in contact with the ulcer as before, thus giving a lessened opportunity for the ulcer to heal. This condition of free passage of gastric content by the natural route has been repeatedly verified by post-operative screen and Roentgen-plate study, yet many patients whose stomachs are thus functionating are, nevertheless, without symptoms. It is, however, because of this failure to relieve all patients that the surgeon has undertaken various procedures to overcome this difficulty, among which are excision or infolding of the ulcer, infolding the pyloric end of the stomach, ligation by means of silver wire or twine, and, more recently, the employment of a ligature of live tissue of fascia or omentum, none of which methods has been signally successful.

Pyloric obstruction to a variable degree occurred in 198 or 34% of the 576 cases of duodenal ulcer. Gastric analyses showed food remnants in varying amounts after 12 hours, in 100 cases or 50%. Reports were received from 163 patients. Nine had died since the operation. Ninety-four per cent. of the remainder were cured or greatly improved.

In 197 of the cases of gastric ulcer, obstruction was present in 78, or 39%. Food remnants were noted in 58, or 71%. Thirteen patients had died since operation. Ninety-two per cent. of the remainder were cured or greatly improved. The results in these two series (Table IV.) are encouraging in view of the fact that some complication, such as chronic or subacute perforation, regional peritonitis and adhesions, multiple ulcers or coincident disease in the gall bladder or appendix, or both, were frequently noted at the operation.

TABLE IV.

PYLORIC OBSTRUCTION.

ULCER

	Duodenum.	Stomach.
Number operated on	198	78
Number reported	163	52
Food remnants	25%	71%
Cured	71%	67%
Much improved	23%	25%
Not improved	3%	2%
Cured and improved	94%	92%
Fair	3%	6%
Complication	40%	43%
Other operations	18%	7%

The number of duodenal ulcers without evidence of obstruction either clinically or at operation was 275. The results were classified as follows:—Cured, 68 %; much improved, 17%; fair, 12%; not improved, 3%; cured and improved, 85%; total number benefited by the operation, 97%.

TABLE V.

DUODENAL ULCERS WITHOUT OBSTRUCTION.

Number reported	275
Cured	68%
Much improved	17%
Fair	12%
Cured and improved	85%
Not improved	3%
Benefited	97%

Of 162 gastric ulcers there were 110 without evidence of pyloric stenosis. The results were classified as: Cured, 51%; much improved, 23%; fair, 14%; not improved, 12%; cured and improved, 74%; total number benefited by the operation, 88%.

TABLE VI.

GASTRIC ULCER WITHOUT OBSTRUCTION.

Number reported	110
Cured	51%
Much improved	23%
Fair	14%
Not improved	12%
Cured and improved	74%
Benefited	88%

TABLE VII.

SUMMARY.

ULCER.

	Number.	Cured.	Much Improved.	Fair.	Cured and Improved.	Benefited.
Total duodenal	436	70%	18%	10%	88%	98%
Duod. (obstructed)	163	71%	23%	3%	94%	97%
Duod. (no obstr.)	275	68%	17%	12%	85%	97%
Total gastric	162	58%	22%	13%	80%	93%
Gastric (obstr.)	52	67%	25%	6%	92%	98%
Gastric (no obstr.)	110	51%	23%	14%	74%	88%

By a comparison of the results obtained (See Table VII.), it will be noted that the percentage of cured and improved cases of duodenal ulcer with obstruction was 94%, without obstruction, 85%, making a difference of 9%. The number of cured and improved cases of gastric ulcer with obstruction was 92% and without obstruction 74%; a difference of 18%. The comparatively good end results in these cases of duodenal ulcer without obstruction may be explained on the theory that: (1) The ulcer in healing contracts and causes partial or complete pyloric or duodenal stenosis. However, the end results in gastric ulcers without obstruction are so successful that the clinician need not delay his surgical diagnosis until obstruction or other serious complication endangers the patient. (2) In about 50% of the cases classified as obstructed, the degree of obstruction was only moderate, and from a practical standpoint, the end-results between these and the unobstructed cases should be very similar. (3) Undoubtedly the reflux of bile and pancreatic secretion from the duodenum into the stomach with its strong neutralizing action upon the hyperacid gastric contents favors healing of the ulcer and consequent remission of all symptoms. (Paterson.)

It may be that the improved drainage better defends the duodenum and pylorus, on account of their situation, from the irritating gastric content, or as a result of the operation, the acid irritation is lost to the duodenal and pyloric areas. Thus in this location healing is hastened. Ingested matter and acidity may still irritate the ulcer higher up (cardiac end).

TABLE VIII.

DUODENAL ULCER.

POST-OPERATIVE SYMPTOMS: DEGREE OF IMPROVEMENT.

Symptoms.	Before Operation.	After Operation.
Influence of food:		
Pain eased	76%	3%
Distress and pain	16%	17%
No effect or agrees	9%	80%
Vomiting	70%	13%
Gas	80%	18%
Hem.	19%	7%
Loss, weight	70%	10%
Gain, weight		68%
Constipated	58%	8%

In the series of duodenal ulcers, 106, or 19%, of patients gave a history of hemorrhage preceding operation. Thirty-one patients had hemorrhage of variable degree following the operation, but only 18 of these had hemorrhage prior to operation. Therefore there was hemorrhage in 13 cases following operation in which there was no history of pre-operative bleeding. In these the hemorrhage occurred some time after operation and was severe in only a small percentage. Out of a total of 108 patients, 94, or 88%, had a gastrojejunostomy performed, only 4% had excision or infolding of the ulcer in addition to gastrojejunostomy. Excision or pyloroplasty was done in 8 cases, or 8%. Three of the patients had post-operative hemorrhage in which excision or infolding had been done.

TABLE IX.

GASTRIC ULCER.

POST-OPERATIVE SYMPTOMS: DEGREE OF IMPROVEMENTS.

Symptoms.	Before Operation.	After Operation.
Influence of food:		
Pain eased	60%	1%
Distress and pain	30%	23%
No effect or agrees	11%	76%
Vomiting	71%	19%
Gas	81%	20%
Hem.	23%	6%
Loss weight	73%	12%
Gain weight		61%
Constipated	62%	15%

Forty-eight, or 23%, of patients with gastric ulcer had hemorrhage prior to operation. Eight patients, or 13%, had post-operative hemorrhage and of this group only three gave a history of hemorrhage prior to operation. Thus in 5 instances there was bleeding in varying amounts following operation in which there was no preoperative history of hemorrhage. Gastrojejunostomy alone was done in 44%; gastrojejunostomy and excision or infolding of the ulcer in 80%. Excision alone, pyloroplasty or resection with or without gastrojejunostomy, was the operation of choice in 48%. Gastrojejunostomy alone was effective in preventing recurrence of all cases which gave a history of hemorrhage prior to operation. Hemorrhage may follow

operation in a small percentage of cases, even when an effort has been made to prevent recurring hemorrhage by excision, infolding or ligation of vessels leading into the ulcer. In all cases in which there is a history of repeated hemorrhage, effort should be made to control future bleeding by whatever technic is feasible.

TABLE X.

TOTAL POST-OPERATIVE RESULTS.

Number of letters sent	773
Answers received	600
Food influence on symptoms:	
Ease	2%
Distress	20%
No effect or agrees	78%
Vomiting	15%
Gas	17%
Other symptoms:	
Hem.	6%
Loss weight	11%
Gain weight	65%
Average gain	25 pounds
Constipated	9%
Acid	10%
Ner.	6%
Mo.	1.2%

Post-operative results. Among other things, our inquiries as to the post-operative condition of the patient were directed to the influence of food upon such symptoms as pain, distress, vomiting, and gas. It is noted (Tables VIII., IX., X.) that before operation, control of pain by food was a great factor. It also controlled other symptoms. After operation, there was little necessity for such control. The greatest benefit, according to our statistics, was that, following operation, food could be well borne without producing untoward symptoms and that pain, vomiting and gas were markedly relieved. There was a gain in weight in 65 to 75 per cent. of the cases and constipation was greatly reduced. The most marked post-operative symptoms generally followed in those instances of chronic or subacute perforation of the ulcer in young adults. In these cases the acidity and hypersecretion were especially marked and peristalsis active.

The co-existence of disease in the appendix (16%) or gall bladder (7%) was noted and corrected in 11% of all the cases of duodenal ulcer. In the group of gastric ulcers coincident disease of the appendix (14%) or gall bladder (5%) was present in 9%. In a considerable number of cases, operation was necessary on both organs in addition to the ulcer, with favorable end-results.

Actual recurrence of an ulcer following a properly performed gastrojejunostomy is infrequent,* but it has recurred (in a few instances) when there was no obstruction of the pylorus at the time of the primary operation. In another small group, a secondary operation was necessary owing to the formation of a "new ulcer at the site where the gastrojejunostomy was made, due to heavy silk or linen hanging in the suture line of the gastrojejunostomy."

The patient who seeks relief from distressing symptoms cannot always appreciate a "practical" cure. To cure is relative, and depends on various conditions: (1) General nervous stability, (2) the pathologic condition present, (3) the extent of this condition, (4) the proximity of the lesion to vital tissues, (5) extent of operation necessary to remove the diseased tissue, (6) coincident diseases, (7) the patient's power to react. These factors enter into consideration when treatment, especially surgical, is to be instituted. The patient may be, and often is, freed from disease and life prolonged; yet he may not be freed from symptoms quite distressing. This is not always the fault of treatment, but an inevitable result of the pathologic condition occurring before treatment was undertaken.

* W. J. Mayo: Recurrence of Ulcer of the Duodenum following Operation, BOSTON MED. AND SURG. JOUR., Jan. 29, 1914, vol. clxx, p. 149.

CERTAIN PHASES OF THE PSYCHONEUROSES AND THEIR POSSIBLE TREND.*

BY G. L. WALTON, M.D., BOSTON.

I NEED not review, with this audience, the various steps in the classification and re-classification of these disorders. I need not remind you that thirty years ago the diagnosis "functional" frequently appeared upon our hospital records interspersed with hysteria, hypochondria, nervous prostration and debility, the choice of terms and their application depending largely upon the fancy of the examiner. In the early eighties the "American" disease, neurasthenia, as interpreted by Beard, was received with acclamation on the Continent. When finally the mental basis was recognized as predominant in these conditions, the term psychasthenia was introduced, I think, by Dana. Later dementia precox came to embrace many of the cases which would formerly have been classed under hysterical insanity, a term now seldom used, though it may perhaps still be applied to the cases described by Diefendorf as "distractible and lacking in sound judgment, eager for sensations, and addicted to sensuous enjoyments, with good memory and apprehension, but prone to incorrect interpretation, reaching to fabrication, sometimes accompanied by injury self-inflicted, for the purpose of evidence." This picture falls far short of dementia precox, even though furnishing the groundwork for certain befogged states, deliria, somnambulism and lethargy.

Whether neurasthenia, psychasthenia, or psychoneurosis is used for an inclusive term is perhaps not a very important matter though psychoneurosis seems to me far preferable, in the

* Read at the meeting of the Boston Society for Psychiatry and Neurology, November 19, 1913.

first place because, just as neurasthenia hardly suffices to indicate symptoms that are largely mental, so psychasthenia falls short in that these symptoms are not after all exclusively mental; thus, when a person of this make-up is prone to headache from a moderate degree of astigmatism, to disabling pain in the knee from moderate flat-foot, and to lumbago and sciatica from a mild degree of laxity in the sacro-iliac joint, it is hardly fair to assume that his mind alone is faulty, any more than we can lay to mental weakness his tendency to hay fever, cold sores, ivy poisoning, hives, and balanitis, signs reminding us that the term "thin-skinned" is not purely figurative.

Another objection to psychasthenia is the fact that it seems to suggest a more definite picture than psychoneurosis; not a serious matter if the same picture is presented to every observer. But to illustrate the fact that it is not, I have recently been consulted by two physicians, each in search of a sanitarium for a "psychasthenic." In answer to my question, "What is a psychasthenic?" the one answered, "Why, a man who is so exhausted by mental labor that his thinking processes have come to a standstill." The other answered, "Why, a man who cannot make up his mind whether his clothes are buttoned, whether he has turned out the gas, and the like." These two cases totally differ in etiology and genesis, and as for treatment, the proper prescription for the one is "Loll about," for the other, "Peg along." For one of these two cases the descriptive term "brain fag" has never been improved upon, nor for the other has the French term *folie du doute*. Such distinctive types deserve at least distinctive sub-headings. Unless, indeed, in place of *folie du doute* we freely use the term obsessive psychosis, which will include the doubting folly, an outgrowth of the obsession to make assurance doubly sure.

I need cite no cases to illustrate brain fag. The type is that of the business or professional man, not necessarily by nature psychopathic, who has for a term of years applied himself to onerous and exacting work without rest or vacation. He finally finds that his intellectual faculties refuse to honor further drafts, that he can no longer satisfactorily perform even his routine duties or carry the ordinary details of his work. A comparatively brief rest, if complete (and such a rest a man of this makeup is more able to take without exhausting worry than the congenital psychopath) sets this patient on his feet.

In contrast to this condition, and in illustration of the obsessive psychosis as it presents itself to my mind, I will cite a case shown last winter at a staff meeting at the Psychopathic Hospital.

CASE 1. A bright, intellectual woman, in good physical condition and not tired, had no loss of memory for remote or recent events, no delusions, no hallucinations, and suffered from no other mental defect than that involved in the following symptom, one which was really rather emotional than intellectual. She had been forced by circumstances to leave the house to which she was greatly attached. Her mind had recurred so frequently to the matter that she had become unable to attend to her ordinary duties and had been sent to the hospital for observation. She described the house without exaggeration, it was not wonderful, but exactly what she wanted. Her insight was good. She knew that her attitude was unreasonable, she said it was a crazy idea but that she could not give it up; if she were in that house she would be perfectly happy. Otherwise the mental examination revealed nothing of note except that she was a very careful housewife, very particular about the cleanliness of the children, about her husband's return when he was expected, etc. No previous attack of seriousness was to be made out and no outbreak of depression or exaltation.

We have here to do with a borderland case differing fundamentally from brain fag in that the disability results from inherent psychic defect, the immediate stress being inadequate and incidental. The distinction between her present mental state and the depression of manic-depressive insanity is again a fundamental one. The depression of manic-depressive insanity settles upon the patient after the manner of a fog, though not always with its rapidity. The depression may be aggravated, it is true, by adverse circumstances, but its fundamental peculiarity is that the cloud settles whether circumstances are adverse or favorable. When this depression attains a certain degree of severity, nothing can make the patient happy, the discontent is inherent, a part of his very being. He is incapable of enjoyment until the period is passed during which his spirits are imprisoned. When the load is lightened there may or may not have been an improvement in outside conditions.

In this patient, on the other hand, happiness and gloom depend entirely upon outside conditions. Her unrest may at any time be caused to disappear by the acquisition of that on which she has set her heart, only to return upon the accession of another insistent desire.

Again, I have recently seen a young law student, exceptionally diligent and successful in his studies. He had, however, a moderate degree of astigmatism, and on continuous study his eyes would smart and sometimes he would have the temporary blur that often precedes migraine. His refraction had been properly corrected by a competent oculist. Still he had given up his studies and had made up his mind, regardless of the opinion of the oculist, that there was danger of his going blind. He was joining a gang of laborers at outdoor occupation requiring no near eye work. He was insistent, nevertheless, on knowing today whether he should ever be able to return to the law. This question he found it impossible to allow to rest in abeyance, or to apply himself to the simplest outside proposition. While the obsessive psy-

chosis is distinct from manic-depressive insanity, it is more nearly allied to it than to dementia precox, in that the insight is apt to be preserved and the disorder is largely one involving the emotions. Fear, is perhaps, the commonest underlying emotion, but it may be an overweening desire without fear, as in the classical case of the man who had to rise in the night and flick from the wall a stone which he had the day before, against his inclination, left unmolested.

It is important from the prognostic point of view to have a definite idea of the trend of the psychoneuroses, particularly the obsessive type. Notwithstanding recent pathological advances, I suppose a considerable neurologic contingent today would allow the psychoneurotic to drift as readily into dementia precox as into manic depressive insanity. But the obsessive psychoneurotic, prone to worry about his health, subject to doubting folly, to phobias, and to compulsions of every variety, is peculiarly prone to drift into not only confirmed hypochondria, but into manic-depressive insanity, even including somatic delusions which represent the tendency of the emotional, finally to encroach upon the intellectual sphere. In other words, manic-depressive insanity requires no structural brain defect and offers no insuperable bar to *restitutio ad integrum*. Dementia precox, on the other hand, is essentially a disease of morphologic deficiency, probably with a structural basis not to be attained by the most unbridled exploitation of the psychoneurotic tendency. On the clinical side the ground was cleared for this distinction (1) by recognizing in so-called melancholia atonita a symptom of catatonia; (2) by differentiating the excitement of manic-depressive insanity from the frenzy (*tobsucht*) of the older writers which was quite as likely to mean catatonic excitement or epileptic furor; and (3) by distinguishing the negativism of the catatonic from the retardation of manic-depressive insanity, the analogue of which may be physiologically produced by simple fright.

The fact that the brain of the precox dement is structurally defective does not, of course, preclude or insure against his being also an obsessive. In this case, however, the obsessive make-up is merely an incident in, not the underlying basis of, the disorder.

That manic-depressive insanity may in fact develop from simple psychoneurosis is illustrated by the case of a man of about fifty, whom I have had opportunity to follow for about twenty years. During the first ten years of that time his symptoms were limited to undue sensitiveness, introspection, phobias, dread of society and the like; about ten years ago appeared the first definite suggestion of the depression which tended to more or less regular recurrence, and finally culminated in an attack sufficiently severe to require protracted sojourn in a hospital for the insane. But may a case of psychoneurosis drift thus, of its own inertia, into dementia precox? I think not.

With regard to the theoretical side of the question whether a structual lesion is essential to this disease, Kraeplin's chronic poison resulting from disordered secretion of the genital organs is purely supposititious, and even if it were true, as De Fursac states, that "we have no actual evidence of any pathology of the disease," when he adds that the assumption of such pathological process is purely gratuitous he might with at least equal pertinence apply the term gratuitious to the claim of Kraeplin.

Meyer apparently regards dementia precox merely as the outcome of faulty mental habits or abnormal "reaction types." This author ingeniously analyzes the inadequate reaction by which the mentally inert avoid grappling the various emergencies of life, and indicates that the habitual resort to such reactions may produce dementia precox. He mentions under this heading "hypochondriacal trends, ideas of reference, fault finding or suspicions or attempts to get over things with empty harping, unaccountable dreamlike, frequently nocturnal, episodes, often with fear and hallucinations, leading to strange conduct, such as the running out into street in nightdress, etc." But his hallucinations and nocturnal excursions of the unclad seriously impair his argument, for it is just here that dementia precox is so widely separated from mental inertia and the psychoneuroses as to place it in a totally different category, and when Meyer says that all these happen on the ground of a neurasthenoid development, many of us find ourselves falling out of step.

Almost equally unsatisfactory, from the pathological point of view are the terms used by Gross, Kolper, Wolff, Zweig, Blueler and Dromard, authors grouped by Southard as standing for the non-organic genesis of dementia precox. Such expressions as "disruptions of judgment," "intrapsychic ataxia" and "psychogenic conflicts" are more satisfactory from the articulatory than from the intellectual point of view. On the organic side, the way, already blazed by Alzheimer, Kippel and Shernitte and Sioli, has been materially cleared by Southard, who singles out the pathogenic lesions of dementia precox from the cytological and stratigraphic changes shared by this disease with other mental disorders. Among the findings of Southard I would particularly call attention to such defects as thinning of the corpus callosum, and to cytologic defects underlying gross defect of cortex substance visible already to the naked eye. The question whether such defects are congenital or the result of acquired changes to which that region was susceptible, is of less importance for the present discussion than the fact that they exist, that they preclude *restitutio ad integrum*, and that the analogue has not been found in manic depressive insanity.

The last word has not been spoken on the prognosis of dementia precox, but the percentage of cases has been narrowed to such a degree

that it seems reasonable to assume, as Mitchell intimates, that the residue of recoverable cases is negligible, and that if cure really ensues our diagnosis of dementia precox is at fault. De-Fursac, after stating that a certain number of cases recover completely, quite properly states that these cases are to be accepted only with extreme circumspection. What he means is that many of the apparent recoveries are only relative and that many are mere remissions. May there not be another reason for this circumspection, namely, that some of these cases are not dementia precox at all, and are we justified in assuming that the patient is bound eventually to become demented, because in a certain attack of insanity he has shown symptoms suggestive of dementia precox. To illustrate:

Case 2. A young man, presented at the staff meeting of the Psychopathic Hospital, has been for a number of years inclined to view his own physical condition with undue apprehension, fearful of heart disease and tuberculosis, and is imbued also with the fear that he has ruined his life by early habits. He was brought to the hospital in a state of agitated and anxious depression, restless, unable to eat or sleep, suspicious that whatever happened in the ward had reference to him, insistent that his chest was caved in, that his heart was not beating, that he had no feeling, that his brain was wanting, and the like. In the course of, I believe, a couple of months, the condition passed away and when his case was presented for consideration he showed no mental peculiarity, no defect of memory, attention or judgment, in other words, no disorder of willing, thinking or acting. He was perfectly oriented and with good insight. He realized that his former fears were groundless and that his ideas, though beyond his control, had been nonsensical.

In this case there was and is a tendency seriously to consider dementia precox, a diagnosis which cannot, of course, be eliminated at this stage. But is not quite as probable a diagnosis psychopathic inferiority with predominant hypochondriacal tendency and with a depressive attack accompanied by somatic delusions of the Cotard type?

This young man's future is, of course, to be regarded seriously, inasmuch as he is liable to further attacks of manic depressive insanity and inasmuch as his hypochondriacal tendency is a more or less permanent handicap. But I shall be surprised if the future discloses the mental deterioration of dementia precox.

In the following case I may be demolishing a man of straw, but the diagnosis dementia precox was at one time here also taken seriously into consideration, by both Dr. Paul and myself.

Case 3. This was a man of 22, a *summa cum laude* graduate. He had given up teaching on account of migraine. He shivered in the morning, was hot all night, had a poor appetite and intestinal irregularity, together with various anomalous sensations, for example, as if the back of his head was asleep. He lost flesh, complained of tendency to walk fast, to run down hill and to open his eyes wide. Suddenly one day he felt as if he could not feel. What he did feel was unnatural, for example, after eating it felt to him as if the food went down outside his ribs, and the like. He felt as if he had no muscles. Was depressed, his energy was going from him and no doctor could help him. The blood did not seem right in his hands. There are no thoughts in his mind. The blood flowing through his ears is too "taut." His voice does not seem right, and he fears it is leaving him. There are bursting explosions all over him and there is no consistency to his flesh and no good in him. There is much blood in his nose and his tongue is in the middle of his sternum. He is about to draw his last breath; his bones are on the surface. He was depressed, complained of a feeling of inadequacy, and was an evident sufferer from mental pain. His condition was so serious as to preclude his occupation. The condition gradually disappeared and today, five years later, he is at work successfully teaching and showing no sign of mental defect.

The following case is really much more suggestive of dementia precox which is still, I think, the prevailing diagnosis among the alienists interested.

Case 4. A woman of about 30, accused her employer of an indecent attack. She made no outcry, she said, but it seemed as if her throat was closed. She continued her work for a week as usual, because it "interested" her. At the end of this time she consulted a physician who referred her to a lawyer. It then appeared that some three years before, she had been an inmate, for nearly a year, of a hospital for the insane, with a provisional diagnosis of dementia precox, and a second choice of catatonia of autotoxic origin. From the hospital records it appears that she was committed on account of talking excessively about a certain work she was to undertake, thinking that the newspapers were talking about her, becoming restless, confused, irritable, then mute and resistive, asking for food and then not taking it, losing weight. During her stay in the hospital she was resistive, would not respond to questions and refused to eat, seemed at times dazed and unwilling to talk, suspicious and confused, apathetic, sometimes excited and struck others; at one time said the food was poisoned; was untidy. After about nine months began to improve. Took more interest and did ward work. Was suspicious of the physicians and sometimes rough with other patients, but less untidy. No hallucinations, well oriented and with no anxiety. Not resistive, but is said to have had the attitude of dementia precox, antagonistic and evasive. Further investigation of her history outside the hospital disclosed the fact that she had made a demand upon another, claiming indecent assault. Later she complained of injuries at the hand of another. She went to a third lawyer with a case, the nature of which is unknown. This lawyer had had two or three more claims of hers against other men for assault. While variously employed, she had recurring trouble with others, who were discharged through her complaints, but afterwards reinstated at her request, only for the trouble to recur.

Examination showed a robust, well-developed, strong and active woman, revealing no mental defect

beyond the suggestion that she lacked continued application, as shown by the fact that while she could subtract 7 from 100 promptly and correctly, also 7 from 93, and 7 from 86, when asked to continue the process she carried it only to 57 (a wrong result) and showed utter lack of further interest. It also seemed that in the past six months she had taken places with five different employers.

Here, then was a third case which might very well be included in the statistics as one of dementia precox with several years' interval without mental deterioration, but to my mind it is very doubtful if the case should be included under dementia precox at all. This young woman possesses highly developed sexual proclivities with a hysterical groundwork, a tendency to find a sexual content in every incident and to fabricate and to exaggerate, if not imagine, her own physical ills. I hesitate to characterize the attack while in the hospital, but in view of the subsequent history I am neither inclined to regard it as dementia precox or acute intoxication. The diagnosis hysterical insanity should perhaps be taken into consideration, with an unusually prolonged period of confusion and befogging of the intellect. At all events, I should rather regard it as an outgrowth of her psychopathic inferiority than as of infectious origin. If I were obliged to designate her present condition, I should feel more inclined to ally it to high-grade imbecility than to dementia precox. This was perhaps an unfortunate case to select for illustration inasmuch as the diagnosis is not clean cut. The acknowledgment of this fact, may, however, tend to absolve me from the accusation of diagnostic absolutism.

Especial care should be exercised in choosing between the diagnosis manic depressive insanity and Kraepelin's "maniacal" or "periodic" form of dementia precox. Thus: I have been recently consulted regarding the testamentary capacity of a man, who, at the age of seventeen, sixteen years before making his will, was treated for six months in a hospital for the insane. This attack was characterized, in brief, by suicidal depression, excitement with violence and profanity, ideas of reference, confusion and non-recognition of friends. The prior history and habits were not of significance. The case was regarded as one of dementia precox. Recovery followed with one attack of depression four years later, lasting two months. Otherwise the mental history has been uneventful, a chosen line of professional work having been meantime learned and successfully practiced.

The diagnosis in such cases is not a purely academic question, but one of practical prognostic importance. Whatever ground we may take as to the future usefulness of the litigious nymphomaniac, are we bound to regard a successful business or professional man as liable to dementia because of a single outbreak, occurring, perhaps, five years ago? I think such patients should rather be given the benefit of the doubt.

CONCLUSIONS.

It would be desirable in the sub-classification of "Neurasthenia," "Psychasthenia," or "Psychoneurosis" (preferably the latter) more freely to use the terms Brain Fag and Obsessive Psychosis, and to recognize the fundamental difference between them.

While the sufferer from obsessive psychosis may drift into chronic hypochondria, or into manic depressive insanity, he will become a case of dementia precox only if he has the inherent brain defect which limits development and predisposes to deterioration.

Prognostic injustice may easily be done by making the diagnosis dementia precox on the basis of a single psycho-pathological outbreak with symptoms suggesting that disease.

SUGGESTIVE TREATMENT IN DISEASES OF CHILDHOOD.*

BY WILLIAM W. HOWELL, M.D., BOSTON.

I WISH to present to you this evening a branch of the healing art which has always been associated with medicine and which even antedates by centuries any scientific or practical knowledge of drugs. Long before man had knowledge of drugs he tried persuasive measures. Hence psychotherapy, mental healing, suggestive treatment, or whatever name one may apply, is the older method of treatment. Plato said: "The office of the physician extends equally to the purification of the mind and body. To neglect the one is to expose the other to evident peril."

Physicians have been loath to use such methods for they constitute the armamentarium of charlatans and quacks, but I hope to show that if we approach the subject fairmindedly and consider actual results, we may be convinced of its scientific value. I have limited myself to suggestive treatment of children, for it is only with children that I have tried to gain any real working knowledge of suggestion. However, I believe the principles to be much the same in old or young.

The older methods of medical instruction dealt with disease and its treatment, not with an individual sick with a disease, not considering the individual's peculiarities, idiosynerasies, and effects from his nervous system. Czerney gives it as his rule not to treat any kind of children's disease without considering the peculiarities of the child. The nervous system of children is very sensitive, easily unbalanced, and susceptible to outside influences, hence psychic disturbances are extraordinarily frequent, and for the same reason easily influenced and cured. A child of psycho- or neuropathic parentage, even at very

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early age may show increased susceptibility to nervous derangement, not merely as pure psychic disturbances, but as psychic manifestations in the course of definite diseases.

By psychic disturbances are understood all those manifestations which have their foundations in the imagination of the individual and may have to do with any organ or function of the body. Consequently by suggestive or psychic therapy is meant any treatment which works on the imagination of the individual. Through our words and deeds we have a marked influence on the feelings and imagination of the child, which in turn exert a mighty influence over all bodily function.

In order to understand the principles of suggestive treatment it is necessary to understand the mechanism of the mental machinery which produces psychic disturbances. To quote from Hamburger: "Any kind of irritation or stimulus occurring one or more times loosens in an individual an unconditional reflex, that is, that the individual for reasons of a congenital susceptibility of his nervous system answers to this stimulus with a definite reflex. If the reflex has occurred several times, if the remembrance of it is active on account of accompanying conditions, then it is possible through voluntary or involuntary reproduction of the stimulus, which is remembrance, automatically to cause the same reflex." It now appears that to understand the mechanism of these processes it is necessary to explain the workings of unconditional and conditional reflexes. All our bodily actions are dependent upon reflexes, which means that a stimulus applied excites the centripetal path to the central nervous system, is then carried over to the centrifugal path, and the action or reflex takes place. A definite stimulus is always answered by the same action, and hence the reflex is called unconditional, and such are the reflexes of ordinary life. It is known that these unconditional reflexes may be influenced by outside factors or psychic factors, and then become conditional reflexes. The experiments of Pawlow, though primarily performed to explain certain digestive phenomena, help to explain the doctrine of unconditional and conditioned reflexes.

Pawlow showed that when a dog is given food immediately the salivary and gastric glands become active. This is an unconditional or unlimited reflex. However, it is not necessary that the dog actually get food, the sight or smell of it being sufficient for the dog to form the conclusion that he is to have something to eat and the reflex takes place. The food, or the sight or smell of it is the unconditional stimulus, the action of the glands the unconditional reflex. Further experiments show that this reflex can be influenced in various ways. If just before the dog gets food a bell is rung and repeated for several days he gets the idea that when the bell rings food is coming, and soon the mere ringing of the bell suffices to excite the reflex. This is a conditional or by some called limited reflex, for if after repeatedly ringing the bell food fails to appear, the glands do not act and the reflex fails.

An understanding of the conditional or limited reflex is not sufficient to explain the mechanism of psychic manifestations, but there is necessary an explanation of the statement from Hamburger, which is "for the discharge of the limited reflex it is in many cases not necessary that the definite stimulus enter, but that the conscious or unconscious remembrance of it may suffice." An understanding of this doctrine clears up a great many of the socalled functional or psychic diseases. An analysis of ordinary fainting attacks, which are pretty generally attributed to reflex cerebral anemia, explains this doctrine. In an individual with exceedingly flexible blood vessels and susceptible nervous system, a severe fright may cause cerebral anemia, paleness, loss of consciousness and a faint. This is an unlimited reflex for the person so constituted must react with a faint. This is an unlimited reflex unless he has had previous attacks, when the remembrance of these previous attacks gives anemia more easily, and we are then dealing with a limited reflex depending on the remembrance. The slightest fright now is able to cause brain anemia, and even the remembrance alone; therefore, the pure psychic reproduction suffices to cause an attack. Such a remembrance may run entirely consciously or subconsciously and cause a reflex anemia. The greater the practice or the more often repeated, the more the disease picture approaches what is known as simulation or hysteria. The less consciously the action runs the more difficult is it to recognize the psychic character of the disease, and indeed it becomes almost impossible to find the cause of the reflex. In such a case the reflex of course cannot be stopped by removing the original stimulus, but can be influenced through an indirect means by interrupting the discharge of the action. Just so in Pawlow's experiments if the dog's attention while eating is distracted, for example, by the sight of a cat, the chain is broken and the reflex, which is the digestive action, is interfered with.

It must be remembered that in children there is always something real as a foundation for their psychic disturbances, which is a physical or psychic trauma or an attack of sickness leaving a deep mental impression, for example, apparent sickness with malaise, loss of appetite in schoolchildren after unjust treatment by teachers, paroxysmal cough after a true attack of pertussis, the many habit spasms, and so on.

As an example of physical trauma causing a psychic disturbance, I will cite the following case:

CASE 1. A healthy boy of thirteen years was attacked by a dog and in some way was struck in the scrotum, resulting in severe pain and involuntary micturition. The boy thought he was severely injured, but told no one as he was ashamed. He suffered from frequent micturition, wet his bed, at times wet his clothes during the day, and could

not go through a session at school without going to the toilet twice. His mother punished him and by comparing him to his younger brother who was clean, increased his shame. The teacher kept him after school for going too often to the toilet. In every way his mental impression was aggravated. This went on for six weeks, when he consented to see me. Careful examination revealed nothing abnormal locally or in the urine. Positive assurance that he could be cured and that he would not wet again if he took some bad medicine resulted in complete cure.

To tell him that there was nothing wrong and that he was silly might have failed. The promise of cure and the medicine to remind him of that promise effected a cure.

That psychic trauma may cause symptoms simulating disease is shown by the following example:

CASE 2. A girl of six years came to the outpatient department of the Infants' Hospital in May, 1913, with a diagnosis of nocturnal epilepsy. Almost every night at 1 a.m. she would become restless, might wet the bed, or waken with a cry, look wild, excited and go off to sleep. Never any day attacks. This dated from a night a year previously when she woke about the same time in the night and went to the toilet. As she opened the toilet room door a large cat sprang out, giving the child a fright. Assurance that she was to be cured and that the cat never could come again, and she must take some bad medicine to be cured, prevented the attacks for a week. The mother could not come to the clinic for two weeks and during this time the attacks returned. Renewing the assurance and a stronger medicine stopped the attacks.

Disease may be affected in two ways psychically, may be aggravated by psychic disturbances, or psychic conditions by lowering the resistance may allow disease to set in. The following case will illustrate both of these points:

CASE 3. A girl of twelve years of nervous parentage and disposition had a slight throat operation which left her extremely nervous. A few days later she went to the seashore for a vacation. On the first day she remained in bathing till she was overtired. The next morning she went for a long tramp, was overheated, hysterical, thought she could not breathe, and fainted. She was in bed several days, and then became well enough to go down to the shore and walk about, but still apprehensive that she was about to faint or lose her breath. A week later twitching of the face and right arm and violent action of the respiratory muscles began. I saw her later with a typical chorea and later an endocarditis developed. The psychic trauma of her fainting and loss of breath helped bring on her chorea and then made it worse.

That disease may cause psychic phenomena, the paroxysmal character of any bronchitis cough after a true pertussis, is an example, the remembrance of the original pertussis causing all subsequent coughs to simulate a whoop, and it is a very difficult matter to decide whether it is a second attack or a simulation. So with chorea—it is one of the hardest medical problems to solve, if a second choriform attack is a relapse, a new infection, or a psychic reproduction.

There is another type of case which is best classed and treated as psychic. I mean disturbance taking place in the sleeping hours, as eneuresis, night terrors and somnambulism. That these processes are due to dreams there can be little doubt, but as they occur in the early hours of the night when sleep is heavy, the dream itself is not remembered. It is very probable that a full bladder causes a dream that the child is on the stool or has a diaper on, and urination takes place and he wakens to find himself wet, but he has no recollections of the dream, or he lives through some fright in his dream and has night terror. That this is true is not possible of proof in all cases; still there are enough cases in which the children remember the dream to enable us to establish the fact. Another proof that these processes are psychic in character is that it is possible to influence them by suggestion in the waking state. It must be remembered that I am speaking of cases in which there is no definite organic lesion to account for the eneuresis or night terrors, for such lesions occurring in highly strung children give nocturnal eneuresis and night terrors which are not open to suggestive treatment. These would be analogous to unconditional reflexes. After lesions have been cured, as phimosis or pyelitis in eneuresis, or fright in night terrors, the conditional reflex due to the remembrance may remain and may then be influenced by suggestion.

There are three methods of treatment, the cathartic method of Freud, otherwise known as the etiological or analytical method, the suggestive or deviation method, and, finally, the method of hypnotism.

The last method, or that by hypnotism, I have never tried and from the cases in which I have seen it tried I am not sure that it is devoid of danger. With the other two methods I have had good results and I can see no need of the more difficult and dangerous hypnotic method.

By the cathartic method is meant the broad meaning of catharsis,—that is, purification. It removes from the child's life the influence or irritant giving rise to his psychic disturbance which has undermined his health. In this sense it is not suggestive treatment, for by simply removing the cause cure results, but it is psychic in that the cause works on the child's mental or psychic side and thus causes sickness.

I can best illustrate by the following case:

CASE 4. A girl of thirteen years, bright and very ambitious. Her father was unreasonably eager that she make good progress in school and in her social affairs, and indeed was quite severe. The child was not overworked and had time for exercise. She craved praise for her work, but instead received no encouragement from her father and nothing but censure for not getting even better marks. When playing the piano at a social event she made a mistake. The father would not speak to her for a week. Under such strain she lost her appetite, became pale, menstruated twice monthly, was very listless and failed to keep up with her classes. A

sharp talk with the father and removal to another school brought return of health and good progress in studies.

The case is psychic in that the child's physical state resulted from her mental unhappiness, and cure resulted by catharsis, that is, by removing the cause.

The suggestive or deviation method is applicable to cases where it is impossible to analyze the case or to remove the cause, or in which the cause has ceased to be active, but merely the remembrance produces the reflex. The mechanism of the method is somewhat as follows: the physical or psychic trauma or the remembrance of it starts the reflex, which runs its usual course up to the point where the child remembers consciously or unconsciously the suggestive cure, when the course is sidetracked and the reflex fails to take place. Exactly as in Pawlow's experiments with the dog when he saw the cat, digestion ceased, the cat being the deviation cure. When giving the suggestion the doctor must be kind but firm, and it is not wise or necessary to create in the child any idea of punishment. The doctor asserts to the mother in the child's presence or directly to the child that absolute cure will take place, and gives some kind of medical or mechanical treatment. It is usually best to give some unpleasant medicine or unpleasant mechanical treatment as the faradic current. It must be something which makes the child remember the words promising cure, and should be repeated often enough to keep up the remembrance. This case will suffice to illustrate:

CASE 5. A little girl of three and one-half years, suffering from enuresis both day and night. Examination of the urine showed many pus cells and highly acid reaction. Clearing up the pyelitis did not cure the enuresis. Positive assurance that she could not wet again and Tr. of Nux stopped the enuresis by day but not at night. Two applications of faradism at bedtime stopped the nocturnal enuresis.

Another class of cases, the various ties or more properly called habit spasms, readily yield to suggestive treatment. In very young children faradism over the affected muscle if persisted in will bring cure in almost every case. In older children, sitting in front of a glass till the spasm occurs, and then repeating it voluntarily several times, often cures. I am inclined to think it is not so much the transformation of an involuntary motion into a voluntary one, as it is the subconscious remembrance of sitting in front of the glass, which produces a cure.

I believe that in many infectious and organic diseases we may be able to relieve much suffering by judicious use of psychic treatment. This opens up a dangerous field and one closely allied to quackery but it seems to me it cannot be quackery if by suggestion definite and permanent good results. A brilliant example of the harm that may be done is the real but temporary improvement in tuberculous cases from a recently exploited cure.

There is one infectious disease in which I have seen marvelous results, not in my own experience but at the Policlinic in Vienna. I speak of pertussis. After the infectious period of from four to six weeks the whoop is a habit and can be stopped by suggestive therapy, even though a bronchitis remains. The whoop recurring with subsequent bronchial or pharyngeal trouble can be stopped with ease. Rachford says in his "Diseases of Children," "The psychic treatment of whooping cough is of importance in children that are old enough to be influenced." Perhaps I lay myself open to criticism when I say that the results reported from the use of vaccines in pertussis depend on the psychic effect of the weak, but I must believe it after what I have seen from suggestion by faradism. The same may be said of chorea after the infectious period is over, and certainly so of the recurrent choreiform movements not due to true chorea. In the case of chorea mentioned above, the child was more comfortable when through suggestion she became convinced that she could breathe and was not going to faint.

At what age results may be expected from suggestive treatment is an open question. I believe in very early infancy there is some response to suggestion. A baby of six weeks may be trained to have a daily movement on a bed pan. A young baby taken from the breast may refuse the bottle. After a few tube feedings he will take the bottle perfectly. There may be some doubt about these cases but in both examples they have received an impression of some kind with a perfectly definite result. After three years, suggestive treatment is perfectly possible in most cases.

I believe that all of us underestimate the value of psychic treatment and that we do not consider enough the nervous makeup of our patients. The man who in treating children is kind but firm, has the knowledge of child nature and the tact to apply such knowledge, can do much to relieve suffering, not only mental, but also that bodily suffering which depends on psychic impressions.

LEPROSY: THE PULSE AS A POSSIBLE INDICATOR OF THE PROGRESS OF THE DISEASE. (A PRELIMINARY NOTE.)

BY JAMES A. HONEIJ, M.D., PENIKESE, MASS.

Penikese Island Hospital.

IN all febrile diseases and especially in tuberculosis, there is an evening rise in temperature, pulse rate and respiration. In leprosy this usual condition is reversed, so far as the pulse rate is concerned. In the morning the pulse rate is higher than at evening; often markedly so. That this condition is not due to the greater morning activity of the patient or to atmospheric changes has already been determined.

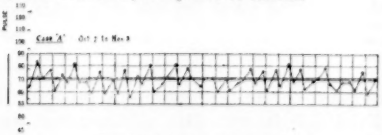
Great care has been taken in the making of these records, and as far as possible, surrounding conditions were alike, (morning and evening): An enforced rest of half an hour previous to taking the pulse and various precautions were observed and controls made to exclude errors. To exclude thermometer faults, all thermometers were compared and adjusted. The patients were at all times under the supervision of a nurse.

This clinical observation was carried out with sixteen patients, during the year 1913, but with greater care after July 1st. This heretofore undescribed phenomenon occurs in the majority of cases, and especially in those patients who are in an advanced, active stage of the disease. The same condition is present during febrile disturbances. One patient shows only anesthetic lesions and whether the disease is actively progressive cannot be determined for some time. From all appearances, this patient has failed during the past year, but as she is one of only two anesthetic cases, it makes the matter rather difficult of solution. All the other patients are of the tubercular type.

Some changes have been observed in temperature and in respiration, and may be an indication of a similar although less marked change than the pulse; but just how important these changes are will not be dealt with in this preliminary report. As the title indicates, I have considered the change in morning pulse rate as an index to the condition of the patient, as a study and comparison of the charts will show.

The charts are for a period of one month showing morning and evening pulse rate in each ruled column. Seventy has been considered the normal pulse rate, consequently there is evident at once the common higher pulse rate in leprosy.

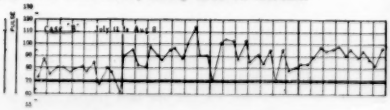
CASE "A". Tubercular type; early case; good physical condition; fairly free of lesions.



CASE "A." Oct. 7 to Nov. 3.

Chart showing fairly normal pulse for comparison with those showing morning rise.

CASE "B". Tubercular type; early case; good physical condition; fairly free of lesions.

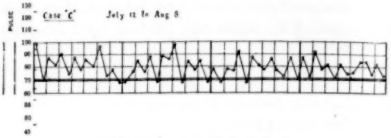


CASE "B." July 12 to Aug. 8.

Chart showing greatly varying pulse, with tendency to change.

NOTE: Patient is a highly nervous individual. Temperature normal. Respiration shows similar tendency as pulse.

CASE "C". Tubercular type; most advanced case; poor physical condition; various and numerous lesions.

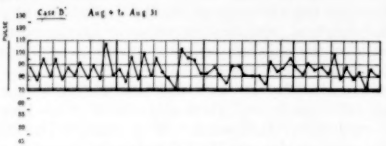


CASE "C." July 12 to Aug. 8.

Chart showing typical change in morning pulse rate.

NOTE: This patient is for the greater part of time in bed in the last stages of the disease. Temperature normal. Respiration shows marked tendency to similar change in morning rise of pulse. This patient shows same condition during whole period observed.

CASE "D". Tubercular type; advanced case; fairly good physical condition; various and numerous lesions.

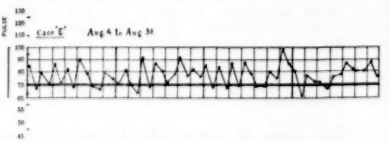


CASE "D." Aug. 4 to Aug. 31.

Chart showing most typical morning change in pulse rate.

NOTE: Patient reacts quickly to any marked physical effort. Normal temperature. Respiration shows slight similar change. During length of period under observation pulse change is regular for all months.

CASE "E". Tubercular type; advanced case; poor physical condition; various and numerous lesions.

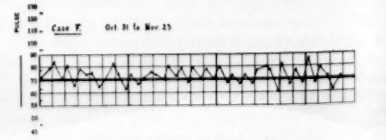


CASE "E." Aug. 4 to Aug. 31.

Chart showing very typical morning change in pulse rate.

NOTE: This patient is a highly nervous individual. Daily health condition varies considerably; temperature slightly above normal as a rule. Respiration shows marked similar change.

CASE "F". Mixed type; advanced case; poor physical condition; fairly numerous lesions.

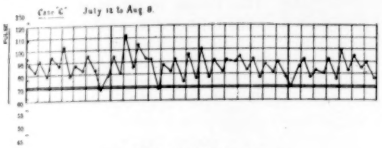


CASE "F." Oct. 31 to Nov. 23.

Chart showing fairly typical change in morning pulse rate although on normal lines.

NOTE: Patient also presents signs of lung tuberculosis. Daily health condition varies considerably. Temperature and respiration show apparently immaterial changes.

CASE "G". Anesthetic type; questionable activity; good physical condition; anesthetic lesions.

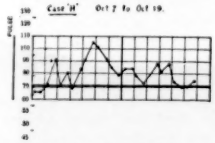


CASE "G." July 12 to Aug. 8.

Chart showing morning change in pulse rate but of "highly nervous" type.

NOTE: Patient easily excitable; chart shows "nervous" pulse; Temperature slightly above normal as a rule. Respiration shows some similar changes. A possible exception to tentative conclusions made regarding value of pulse readings.

CASE "H". Anesthetic type; stationary case; good physical condition; anesthetic lesions only.



CASE "H." Oct. 7 to Oct. 19.

Chart showing pulse during febrile disturbances with tendency towards change in morning rate.

NOTE: Patient here showed the usual febrile change with its accompanying symptoms as seen in leprosy; up to this time patient had been practically free from signs of disease excepting the original permanent lesions due to anesthetic leprosy.

In analyzing the result of this work and the frequency of the occurrence of this phenomenon for five months, the following facts have been obtained.

a. In the six patients who present this change in more than three-fourths of the time noted, one has died, four are in the most advanced stages, and one is an exception, being an anesthetic case. The charts of five of these patients of this group are presented with this paper.

b. Three cases demonstrate the change noted in more than one half of this period. In the second of these patients there is a marked increase agreeing with the general condition, during the last three months and in the third during the last two months. In the other case there is a marked decrease in the last two months agreeing most strikingly with the recovery of the patient from a prolonged and serious condition.

c. Three cases show this change during more than one fourth of the time, and in two of these cases there is a still greater increase during October and November. Clinically these patients are in an advanced stage.

d. Four cases, all in the early or less serious stage of the disease gave negative results during July, August, September, and with one exception during October and November. The exception shows the tendency towards the change in higher morning pulse rate during one half of these two months.

This reversal of the usual febrile diurnal pulse may prove by further investigation to be of real prognostic importance. And, in the hope that other workers may verify this observation, this paper is now presented.

ILEAL STASIS.*

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METCHNIKOFF has rightly called the large intestine, the cesspool of the human body. In his remarkable work, he calls attention to his researches bearing upon the effect of the existence of such a cesspool in the body. He has shown that autointoxication, decline and senility, are due in large measures, to absorption of toxins (pathological to be sure) from the large intestine. Since he called attention to these facts, we have discovered that such pathological absorption can only occur to a harmful degree, when the contents of the large intestine become unduly stagnant. But, however harmful such may be in any individual case, there are much more disastrous effects when stasis occurs in the small intestine. I will confine this paper to a consideration of ileal stasis, therefore, as it appears the more important.

Stasis in the ileum, is usually caused in four ways, by chronic appendicitis, by an ileal kink (as that of Lane[1]), or by a congenital membrane (as that of Jackson[2]), or by an incompetent ileo-caecal valve[3]. More than one of these causes may be present and at times a kink seems to have formed more or less as a result of a chronic appendicitis. As a general rule, the incompetency of the ileo-caecal valve is preceded by one or more of the others. Conversely, the first three usually result in the last. Most of the symptoms of this stasis, are due to this failure on the part of this valve, and so we must review the normal anatomy and physiology of the caecal region, in order to understand the condition.

The intestinal peristalsis, is broken or interrupted in two places—at the pylorus and again at the caecum. The pylorus has a true sphincter, whereas the ileo-caecal valve has more of a valve, due to its pushing into the caecum. It has also a sort of sphincter, in that the habenula[4] or taeniae coli do not invaginate into the caecum with the ileum, but are stretched tightly across the invaginated ileum's base, to preserve the intussusception, as it were. Kellog[5] believes the integrity of the habenula is an important

* Read before the Norfolk South District Medical Society, Boston, Mass.

factor in the normal physiology of the valve. In the dried specimen, the upper segment projects further into the caecum than does the lower. Thus, the aperture lies between the edge of the lower segment and the under surface of the upper. Symington[4] pointed out, that the efficiency of the ileo-caecal valve is due to the obliquity of the invagination and, as in the case of the ureter piercing the bladder wall, such a mode of entrance is probably enough for the potency of the valve.

Normally putrefaction never takes place in the small intestine. According to the best authorities only the carbohydrates are fermented by the bacteria of the small intestine. Digestion of the food intake, is practically complete by the time the terminal ileum is reached, which usually occurs in from two to five hours. At least 85% proteid, 90% fat and 98% of sugar are assimilated by the small intestine. The ileo-caecal valve has three purposes:

1. To hold back undigested food.

2. To pass unused intestinal contents, which are nine tenths water, into the colon for dehydration.

3. To prevent regurgitation of the contents of the colon into the ileum—Cannon[5] has shown that reverse peristalsis occurs normally in the ascending colon and caecum and the patency of the valve is very important, in order to prevent caecal contents being forced back into ileum.

Cannon, Case and others, have shown, by means of the x-ray, that this valve not only prevents the return of material from the colon into the ileum, but that it also regulates the onward movement of the food stream from the terminal ileum into the caecum. In this way, it is very much the same kind of sphincter-valve as the pylorus. Thus, normally, no intestinal stasis may occur, but under pathological conditions, as we have already pointed out, it may occur from four causes.

Perhaps the most common cause of stasis, is a chronic appendicitis (Plate 1). Adhesions readily form about the appendix and caecum, and they may cause stasis in several ways. Directly, through partial obstruction to a greater or less degree stasis may occur. Or, indirectly, they may cause overdistention of colon and terminal ileum, with the resultant rupture of the habenula, the destruction of the normal intussusception of the ileum into the caecum and a worthless ileo-caecal valve. The results of this we will refer to later.

A Jackson membrane (Plate 2) may cause stasis also. It may do so either by constricting the ileum or ileo-caecal valve in such a way that food cannot pass into the caecum, or by causing incompetency of the valve itself.

The presence of a Lane's kink (Plate 3) usually results in ileal stasis, because it shuts off the lumen of the gut, mechanically. It may, however, constrict the ileum in such a way as to cause no real mechanical obstruction, but rather pull the ileum back out of the caecum and thus destroy the competency of the ileo-caecal valve. The ileum is no longer kinked, as the added length prevents such mechanical obstruction, but stasis results just the same.

An incompetent ileo-caecal valve (Plates 4 and 5) is a very important cause of ileal stasis and often results from any one of the other three causes, as we have pointed out. In fact, the majority of the pathology of ileal stasis, is due to the failure of this valve. It may occur independent of the other causes, for overdistention of the caecum or terminal ileum from gas or food, may result in obliteration of the normal intussusception of the ileum into the caecum.

As a result of the failure of the ileo-caecal valve, the food is allowed to reach the colon with digestion incomplete. Diarrhoea may result easily, with malnutrition. On the other hand, the reversed peristalsis in the colon, propels the contents back into the ileum, with their millions of bacteria. Putrefaction and toxic absorption take place, where normally none occurs. Gradually, this involves more and more of ileum and jejunum and the worst effects of the regurgitation are registered on the duodenum, gall bladder and stomach[6]. In the most of such cases, the duodenum is found markedly distended and in very advanced cases, the congested mucosa results in tremendous peristalsis with gnawing pain and distention in the duodenal region. Such duodenal distention may then be accompanied by gastric residue.

The duodenum is the most sensitive point in the alimentary tract. It is not at all strange, that with the congestion and ulceration due to bacterial invasion from the colon, the biliary and pancreatic duets should likewise suffer. Cholecystitis, pancreatitis, gall stones and even cancer, may then result.

The symptoms of this stasis are many and varied. They may be those of chronic appendicitis, Jackson's membrane[7], Lane's kink[1], gastric or duodenal ulcer or of autointoxication.

With the increasing skill of trained Roentgenologists, the positive diagnosis, depends on x-ray examination to a very large extent. Any of the symptoms as outlined, should always have an x-ray examination. The bismuth meal should all be beyond the ileo-caecal valve, in from 6 to 8 hours after ingestion. Not only can the degree of stasis of the ileum be diagnosed in this way, but in the majority of cases the cause, as chronic appendicitis, Lane's kink, Jackson membrane and incompetency of the ileo-caecal valve. Jordan, Case, Brown, Dodd and others, report cases of incompetency of the ileo-caecal valve, when bismuth enemata were used, in which the bismuth has passed the valve and has proceeded as high as the jejunum and duodenum.

The treatment may be either medical or surgical. In cases where constipation seems to be the cause alone, bulky food should be the only diet and albolene, agar-agar, etc., should be given. Three stools a day should be required,



PLATE 1.

Ileal Stasis Due to Chronic Appendicitis.

Diagnosis made by x-ray examination, Dr. Walter Dodd, and confirmed at operation.

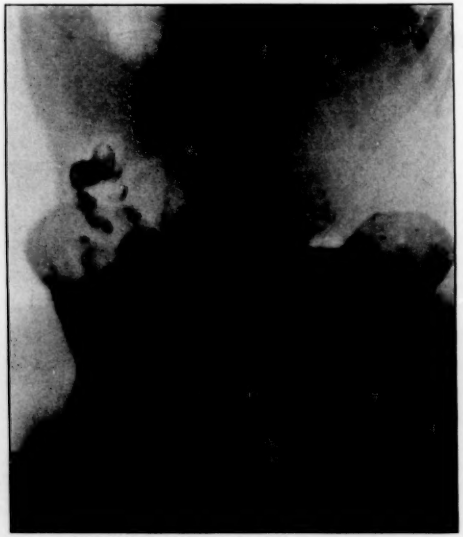


PLATE 2.

Ileal Stasis Due to Lane's Kink.

Diagnosis made by x-ray examination, Dr. Percy Brown. Operation: Lane's kink freed, ileo-cecal valve repaired. Four months later no recurrence of symptoms.

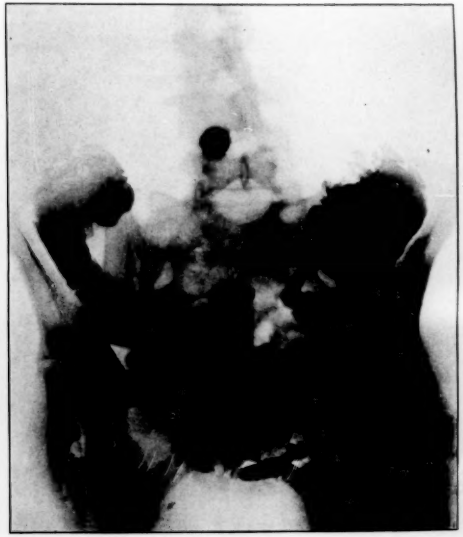


PLATE 3.

Ileal Stasis Due to Jackson Membrane.

Diagnosis made by x-ray examination, Dr. Percy Brown. Operation: Membrane severed, raw surfaces covered with omental graft. One year after operation no recurrence of symptoms.

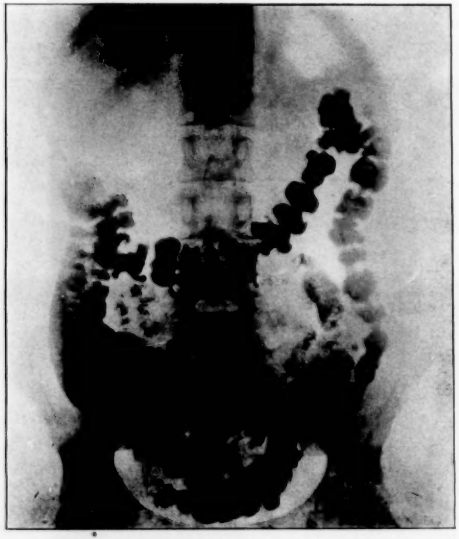


PLATE 4.

Ileal Stasis Due to Incompetent Ileo-cecal Valve.

Diagnosis made by x-ray examination, Dr. Walter Dodd. Operation: Ileo-sigmoidostomy, nine months after operation, no recurrence of symptoms, with gain of twenty pounds.



PLATE 5.

(Bismuth Enema.)

Ileal Stasis Due to Incompetent Ileo-cecal Valve.

By courtesy of Dr. Walter Dodd.

preferably after meals. The protein intake should be reduced and the carbohydrates increased, in order to decrease putrefaction. The bacillus bulgaricus may be fed to help decrease autointoxication. Kellog's results[3] are most gratifying after an average treatment of 48 days, for 86% are cured or nearly so.

The surgical treatment is indicated where the medical has failed and always where a true lesion is known to exist. Membranes and adhesive bands must be freed and the raw edges covered with peritoneum, so that they will not reform. If the ileo-caecal valve proves to be incompetent, it should be repaired by invaginating the ileum into the caecum and stitching it there and by stitching the torn edges of the habenula. At time of operation the efficiency of this valve may easily be determined by stripping back the contents of the ascending colon and caecum to see whether it will pass back through the ileo-caecal valve into the ileum. Then after repairing the valve, test the efficiency of your work in the same manner.

In case these procedures cannot be done we must resort to ileo-sigmoidostomy. In doing this operation, the ileum should be obliquely invaginated into the sigmoid, a short way, in order to construct a competent ileo-sigmoidal valve.

Any patient with symptoms of chronic constipation, autointoxication, suspected kinks or membranes, should have a thorough x-ray examination by an expert Roentgenologist. When pathological conditions are found present they should be treated medically or surgically.

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[4] Cunningham: Anatomy, p. 1078.
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Medical Progress.

REPORT ON PEDIATRICS.

By Thomas Morgan Rotch, M.D., Boston,

and

Charles Hunter Dunn, M.D. Boston.

ACQUIRED CARDIAC DISEASE IN CHILDHOOD, RÉSUMÉ OF RECENT LITERATURE.

Göppert[1] discusses the diagnosis of acquired cardiac disease in early life, with special reference to the frequency of evidence which might lead to an erroneous assumption of a cardiac defect. Among them are the heart-lung murmurs which appear and disappear during the examination and become inaudible if the breath is held in the expiratory position. He declares that systolic murmurs at the pulmonary orifice are so frequent that they are an almost normal occurrence in the development of the child, and only a small proportion of them are associated with anemia and malnutrition. In Göppert's experience, a slight impurity of the first sound has frequently led to the mistaken assumption of an endocarditic murmur, and a reduplicated second sound is liable to cause unwarranted concern. If no other changes can be discovered in the heart, these murmurs may be regarded as accidental. The high pulse rate frequent in normal children is also apt to be misleading. If the pulse is good, Goppert has the child run up two flights of stairs and examines him again as soon as he comes down. With normal conditions the child is only a little out of breath, and the increased pulse rate returns to the normal in about three minutes and keeps strong throughout. Göppert warns against the erroneous diagnosis of myocarditis when the pulse is slow, and occasionally intermittent. This form of irregularity is comparatively frequent in children, possibly from intestinal reflexes or growth anomalies. The stair test, in these cases, is followed by acceleration and normal regularity of the pulse, but the irregularity returns as the effect of the test subsides.

Shlieps[2], takes up the question of the disappearance of one heart sound, which occurs in infants with severe nutritional disturbances. There has been much discussion as to whether the remaining sound is the first or the second. The question is of practical importance from the point of view of treatment, because if it be the first sound which disappears, therapy should be directed toward increasing the contractile power of the heart, whereas if it be the second, treatment should concern itself with the blood pressure. Shlieps believes it is the first, or muscular heart sound which disappears, and gives the following reasons: 1. We know that during severe cases of acute infectious disease in older children, it is the first sound which disappears. 2. The poor nutritional condition of the skeletal musculature would suggest a similar condition in the heart muscle. 3. If the blood pressure is normal, diminution of the clearness of the heart sound would suggest that it is the first sound which grows fainter. 4. The remaining sound is more distinct at the base than at the apex. 5. The administration of cardiac stimulants, such as camphor, makes the sounds clearer, even when the blood pressure is normal.

While Shlieps' conclusions may be correct, we cannot agree with all the reasons given. Recent work has clearly shown that in fatal cases of acute infectious disease in older children, the cause of death is lowering of the blood pressure much more frequently than weakening of the muscular power of the heart. Also the results of blood pressure work in infancy have not yet

been sufficiently satisfactory to permit the drawing of any valuable conclusions on this basis. Shlieps' second reason, the poor nutritional condition of the muscles in general, seems the most suggestive.

Nobecourt and Voisin[3] lay stress on the importance of an accurate study of the relative cardiac dullness in diagnosis, prognosis, and treatment. They compute the surface area of the heart by Potain's formula, taking as the vertical diameter the distance from the upper border of liver dulness to the top of the cardiac dulness, and as the horizontal diameter the line from the cardiac-hepatic angle to the apex. The product of these two diameters, measured in centimeters is multiplied by the constant .83. They studied thirty-six cases of cardiac disease in children. Two cases were congenital cardiac disease, and showed a formula a little above normal. (The type of lesion is not specified.) Two cases of adherent pericardium showed little or no increase. Twelve cases were acute endo- or pericarditis. From the acute cases they conclude (1) that increase in the precordial dulness may appear before the signs of endo-pericarditis; (2) The increase with acute endocarditis is very marked; (3) The increase is still more important with pericarditis. Their remaining twenty cases were chronic. Compensated mitral insufficiency showed only a slightly increased area, but the onset of an acute process is quickly manifested by a marked and notable increase.

Friberger[4] has made an interesting study of cardiac arrhythmia in healthy children. His observation comprise three hundred and twenty-one children from five to fourteen years of age. Complete histories were taken and physical examinations made. He found a perfectly regular pulse in none of the children. He divided the cases into three groups:

(a) Cases with slight arrhythmia..37.4 per cent.
(b) Cases with mild arrhythmia...50.4 per cent.
(c) Cases with severe arrhythmia..12.2 per cent.

Various types of irregularity were encountered. In most of the cases there was an alternation of long and short pulse. There was at times progressive increase for a number of beats, then a decrease. In other cases there was a sudden retardation at regular intervals, followed by a gradual increase in rapidity. Auricular extra-systole was seen, but real ventricular extrasystole, and auriculo-ventricular heart-block were not observed. There was an evident relation of the arrhythmia to the respiratory variations seen in children. Friberger holds that in children otherwise normal, irregularity of the pulse does not mean that there is any heart lesion.

Mackenzie[5] also lays stress on the importance of recognizing as normal irregularity of the pulse. He calls the type of irregularity characterized by the varying length of the pauses between the second and first sounds, the normal youthful type. He has never found this type associated with the true heart failure. Mackenzie further points out that the presence of heart murmurs in the young should not be taken to mean that there is any cardiac lesion. Where there is an organic lesion in the young, the signs of myocardial weakness are invariably present. Subjective symptoms are of prime importance, in recognizing cardiac weakness.

Turnbull[6] points out that the appearance of extrasystoles, if they have not previously been present, are strongly suggestive of myocardial changes in children. Increasing cardiac instability, makes active progessive myocardial change very probable, with correspondingly serious prognosis.

Poynton[7], in a paper on "Some of the Rarer Occurrences in the Rheumatism of Childhood," mentions tachycardia as a comparatively rare occurrence. He believes it to be commoner when the myocardium is affected out of proportion to the valves.

Important studies have been published recently on the pathological histology of the myocardium after diphtheria. Tanaka[8] examined the hearts of fifteen children dying of diphtheria. He found in all cases myocardial regeneration, consisting in fatty degeneration, or waxy-like degeneration with loss of cross striations and partial or complete loss of nuclear staining. He attributes the acute cardiac weakness entirely to these myocardial changes. He found no special involvement of the auriculo-ventricular bundle, and believes that changes in the bundle of His cannot be regarded as the cause of death in these cases.

True heart-block has been recently reported in a number of fatal cases of diphtheria. Magnus-Alsleben[9] has reported a case of complete heart block in a child of 8 years, dying of diphtheria, in which the bundle of His showed a severe parenchymatous degeneration. Fleming and Kennedy's[10] case showed on the sixth day of diphtheria a marked variation in the pulse rate, from 40 to 88 per minute. On the eighth day there was evidence of cardiac dilatation. Death occurred on the ninth day. Tracing showed the auricles and ventricles contracting at different rates. The auriculo-ventricular node and the first part of the bundle showed an acute inflammatory condition. The myocardium of both auricles and ventricles showed degeneration. The vagi showed no changes.

Rohmer[11] has also studied heart block appearing several days before death in diphtheria. The clinical studies were supplemented by observations with the electrocardiograph. He found that even in cases showing heart-block, the His bundle was only very slightly affected. Waxy degeneration with interstitial changes was found in scattered areas, but never involving more than half the diameter of the bundle. On the other hand the myocardium in general gave very marked evidence of fatty degeneration. Injection of large doses of diphtheria toxin into rabbits failed to produce any lesion of the bun-

dle of His. Rohmer believes that diphtheria toxin has no selective action for the tissue of the His bundle, but it may so affect the functioning power of the bundle that heart-block may be produced.

Numerous cases of heart block in early life aside from diphtheria, have been published recently. Galloway and Fenton[12] have reported a case of typical Stokes-Adams disease in a boy of 18. The pulse rate was 32 to 40 per minute, and he had repeated fainting attacks. The auricular-ventricular rhythm was usually 2 to 1, but occasionally 1 to 1.

Armstrong and Mönkeburg's[13] case was in a boy 5 years old. Tracings from the jugular vein and radial artery showed no relation between the auricular and ventricular systoles. The pulse was 40 to 50 per minute. The boy died in an epileptiform attack. Autopsy showed a lymphangio-endothelioma of the auriculo-ventricular node.

Cleveland's[14] case was in a boy of 15, who had attacks of unconsciousness without convulsions and a pulse rate of about 30 per minute. Autopsy showed hypertrophy of the left ventricle but no valvular disease. There was no microscopic examination of the auriculo-ventricular node or bundle.

Fulton, Judson and Norris[15] report three cases of heart block in the same family, the father, aged 41, a daughter, aged 20, and an infant of 22 months. They accept as the most reasonable explanation of this rare occurrence a probable congenital abnormality in the bundle of His, or of its blood supply.

Gill[16] reports a case of congenital heart block. The patient was 3 years old, small for her age, but fairly well nourished. The pulse rate and respiration rate were both 50 per minute, and were usually coincident. Occasionally there would be a deep sighing inspiration followed by a longer pause, but during this pause the heart would continue to beat as before. There were never any epileptiform seizures. The tracings of the jugulars were unsatisfactory. Death occurred suddenly, and no postmortem was allowed.

Hecht[17] reports two cases illustrating the occurrence of both functional and organic heart block in childhood, and the distinction between them. The organic case occurred in a child of three after diphtheria. There was extreme bradycardia. The tracing showed a block, and atropine had no effect. The functional case was also in a child of three, occurring after measles. The tracing also showed a block, but under atropine the bradycardia disappeared, and eight days later it disappeared spontaneously.

Pisek and Coffin[18] have found the polygraph of undoubted diagnostic aid in the cardiac conditions of childhood, used in connection with the ordinary methods of treatment. They have found it useful in indicating the approach of digitalis heart-block, by showing irregularity of the cardiac action under the use of this drug. They coincide with the other writers in finding respiratory arrhythmia very frequent in childhood, but do not regard it as always physiological, believing that it may be an indication of myocardial change.

Hoobler[19] has contributed an interesting addition to our knowledge of blood pressure readings in childhood. He calls attention to the value of his method of indicating both systolic and diastolic blood-pressures in childhood. The details of his instrument can be found in his first publication on the subject[20]. He has found that his instrument compared very closely in efficiency with the Erlanger sphygmomanometer, that it indicates both pressures automatically and visibly, that it eliminates the element due to the personal equation, and that it is of special value in children, since it permits the use of the leg when the arm is too small.

Leitao[21] has measured the blood pressure in two hundred healthy children from one to three years of age, 70 per cent. being in the first year. He found the blood pressure normally low in infancy, averaging about 70 mm. in the first six months of life, going up very slowly to the fifth year. The pulse pressure is relatively higher than in adults, and increases progressively.

Several writers have contributed to our knowledge of the prognosis of valvular disease of the heart in early life. Heinrich[22] comments on the more favorable prognosis which the course of time has brought. He mentions that Benfy has reported five cases in which the patients lived to be 17, 20, 27, 42 and 69 years old, that Cassel has reported three cases of complete recovery from mitral insufficiency in children, and quotes several other cases of recovery.

Gilbert[23] has studied 197 cases of endocarditis admitted to the Massachusetts General Hospital from January 1, 1901 to January 1, 1913, with interesting statistics as to the distribution of the lesions, and of the etiology. The result in the cases discharged with valvular lesions have been better in the later period, when continued treatment including careful supervision of the entire life of the child was carried on after the patients were discharged from the hospital. Of 42 cases discharged and treated in this way, 35 or 83 per cent. were compensated at the time of writing. He believes the continued treatment and careful supervision has much to do with the good results noted thus far. He notes the liability to relapse of acute endocarditis, and believes that endocarditis should be considered as acute over a much larger period than has been the custom. He believes that treatment should be continued until adolescence is passed.

Dunn[24] reports on 283 cases of acquired cardiac disease admitted to the Children's Hospital previous to 1903, of which 180 were followed after their discharge to the date of writing. The mortality in the first cardiac attack was 20 per cent. The mortality in those discharged, followed for at least ten years, was 51 per cent.

The final mortality of all the cases, including those dying in the hospital, and those dying later, was 63 per cent. Of the 180 patients discharged, 88 were alive after at least ten years. 140 cases died before the age of 14, most of them in a recurrent acute attack, and only seven cases have died after passing the age of puberty. The most notable point as bearing on prognosis was the remarkable freedom from disability of the survivors, 77 out of 88 being apparently fully compensated at the time of writing. Dunn believes that the prognosis is more favorable for adult life, the earlier in childhood the lesion is acquired, provided that the patient escapes the great danger of recurrent acute attacks which persists throughout childhood. No especial care or supervision was exercised in this series. We believe that if such a treatment as that described by Gilbert had been carried out during the remaining years of childhood, it is very possible that the very great subsequent mortality during childhood might have been reduced.

Moon[25] points out that the diagnosis of cardiac disease in childhood is made easier by the fact that the lesions are the results of inflammation, and not degeneration, and that it is unnecessary to consider all those degenerative changes comprehended under the term arteriosclerosis. He calls attention to the fact that chronic cardiac disease in children tends to produce a condition of malnutrition and wasting, which should lead us to suspect the heart. In the matter of treatment he lays stress on the importance of guarding the child from a fresh attack of rheumatic fever, and on the importance of allowing exercise in moderation to compensated cases.

Cockayne[26] investigated the possible influence of the salicylates on the occurrence of cardiac lesions in chorea. Of 780 cases, 355 patients were given salicylates, and 425 received other treatment. If the drug had no effect, the cases showing cardiac change should be in the proportion of thirty-nine untreated to thirty-two treated with salicylates. The actual proportion shown in 77 cases which developed signs of cardiac involvement was thirty-nine in the untreated to thirty-eight in the treated. The figures are so close that the disparity can have no significance, and Cockayne concludes that the salicylates appear to have no action influencing cardiac involvement.

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Reports of Societies.

NORFOLK DISTRICT MEDICAL SOCIETY.

MEETING OF OCT. 28, 1913, HELD IN ROXBURY, MASS. BRADFORD KENT, M.D., SECRETARY.

DR. WILLIAM W. HOWELL read a paper entitled,

SUGGESTIVE TREATMENT IN DISEASES OF CHILDREN.*

DISCUSSION.

DR. E. W. TAYLOR: It is gratifying to those of us who are particularly interested in the nervous system that Dr. Howell has taken up the subject of suggestive treatment. The evidence is increasing that this subject is no longer to be regarded as a special field in medicine, but that practitioners of whatsoever sort are coming to see its importance and universal application. As applied to children, the whole matter of psychotherapy is of peculiar significance. The feeling is growing that even young children are peculiarly susceptible to mental influences, and it naturally follows that such influence should be carefully directed and applied with the same scientific precision as is used in other departments of therapeutics. It is clear that one of the most important subjects of the immediate future is a more painstaking study of the child's mind in the light of the accurate knowledge which is rapidly accumulating, and to this Dr. Howell has drawn our attention in his paper. There are many methods of psychotherapeutic procedure, some of which in my judgment are much more useful than others. Hypnotism, one of the cruder and earlier methods, is no longer used to any extent as

* See page 230 for full text of this paper.

a therapeutic measure, owing essentially to the fact that it relieves symptoms but fails to strike at the root of the difficulty, much as morphine may relieve pain but masks rather than reveals underlying causes. Suggestion in the sense in which Dr. Howell has applied it is in a measure open to the same objection; though less crude than hypnotism, it still fails in many cases to reach the source of the difficulty. I am inclined also to think that Dr. Howell's method of giving bad tasting medicine or applying similar methods to influence the mental state of the child is on the whole undesirable, although I can easily see that in certain cases no other might be available. It is probable that if sufficient time were given, it would be possible in many cases, even in comparatively young children, to use less drastic means with equal effect, and to explain the significance of symptoms rather than to attempt their removal without such explanation. This leads to the most significant advance in psychotherapy of the past decade, which goes under the general name of psychoanalysis and is particularly associated with the name of Freud. Leaving out of consideration entirely the question of sex, which in certain quarters seems to have brought the method into disrepute, we should certainly see in the underlying principle one of the most significant steps in practical psychology which has ever been made. I refer to the sincere attempt to analyze in the light of existing symptoms the conditions which have led up to those symptoms. Whether these conditions are sexual or not is a matter of relatively small importance provided the principle be distinctly understood that such an analysis is the first sincere attempt to get at causes, and that thereby psychotherapy has been established as a scientific procedure precisely in the sense that the study of etiology in bodily disorders is a scientific procedure. As is now generally known, such psychoanalysis has been applied to children as well as to adults. Its difficulties are manifest, but that it represents an attempt in the right direction should no longer be questioned. We are certainly indebted to Dr. Howell for having brought this subject to our attention, and in advocating an analytic method, I should not wish to be regarded as deprecating cruder procedures which it must be freely admitted may often accomplish most excellent results, as in fact Dr. Howell's cases have demonstrated.

DR. C. D. KNOWLTON: Dr. Howell always writes a good paper. It is with much pleasure that I have followed his excursion into suggestive therapeutics from the standpoint of the specialist in diseases of children. It is also a pleasure to hear Dr. Taylor's clear and forceful presentation of the subject, coming as it does from his ripe experience as a neurologist. What have I, as a general practitioner, to say? One of our chief functions is to continually scrutinize the ground, north, east, south and west to be sure that our specialist friends are not putting one over on us. Tonight I believe we have listened to the real thing and to further support this belief let me quote you a few sentences from recent authors. Chapin and Piesek say that often a good part of a physician's success in handling children is due to his knowledge and interest in their mental processes. He learns to take advantage of their susceptibility to conviction, to suggestion, or of their pride, and control is thus easily acquired. Time spent in studying the mental attributes of a seemingly incorrigible patient is well spent, for almost without exception the maturer mind conquers by persistence, tempered with kind indifference. Pfaundler and Schlossman say that in the care and treatment of a child at any age the psychical effect is of the greatest importance. The inner life of the child is not sufficiently understood by nurses and doctors. To be successful we must carry out all painless procedures without producing resistance on the part of the child. We do this by a friendly manner, diverting attention and encouragement, thereby causing the child to become trustful and docile. Active suggestion requires positive exhortation whereby a child's attention is fixed upon the doctor; impressive manipulation as medicaments, electrical current, massage, passive and active exercise. Psychic influence is in varied methods of treatment—sojourn in the country, baths, sanatoria. Association with other children of the same age acts as above by producing (a) sense of new impressions (b) change in routine (c) improvement in temper (d) new impulses in the will (e) change in the tone of all the functions. The preliminary conditions of an adequate course of psychic treatment are (1) Protect the patient against an unhygienic habit of life—poor food, disturbed sleep, overfatigue, etc. (2) Suitable conditions of mental hygiene—avoid irritating and depressing surroundings and no contact with persons who are themselves of an unhealthy, ill-balanced mental disposition. (3) Requisite relation to the physician himself for the time being—authority absolute in all severe cases superceding, by delegation, that of the most responsible of the patient's family or friends. Hence the position of the psychotherapeutist becomes one of trust, entailing obligations that are as deep and sacred as those involved in any relation in life.

DR. M. H. A. EVANS: Dr. Taylor has spoken of the importance of the early life of the child. I believe this point cannot be too strongly emphasized. It is during the first five or six years of life that we can accomplish most toward the prevention of nervous disorders in later life. Leaving a silent and almost absolute calm the newborn is projected into a confusion of movement, sounds and light. The five senses are alert and during the waking moments the brain is undoubtedly subjected to a very great strain as it attempts to sort and classify the many recorded impressions. As soon as any single impression is recognized in its relation to anything else it represents an association of ideas. Think how early this process begins: Every smallest part of the infant experience is important then for it is upon the experience then acquired that the child depends for its thought in the future. Every new idea must be reconciled to these first ideas. If we furnish unhealthful material or faulty data to be absorbed and incorporated in the experience of a child, that child must at some time in after life either laboriously dissect and then reconstruct the data in accordance with the truth, or go through life forming false conclusions and exhibiting inconsistent and unhealthy mental reactions. We should be exceedingly careful that we do not introduce false ideas into the rapidly filling mind. We should present only accurate and clearly defined data. We should, above everything else, offer wholesome material for its consumption. Do not permit a child to hear statements that are not intended to be received and acted upon. "She is a delicate child; never was very strong," may well be expected to result in an unqualified acceptance

of this condition, and who is to question the right of this child to grow to adult life believing that she is a delicate person and that she is not strong. Let us teach children to think of themselves as strong and well and this attitude may be expected to persist. They will build their thoughts on this groundwork and develop a tendency to be well which may help us out as doctors many times when we despair of our physic.

DR. HAROLD: In closing the discussion I wish to thank Dr. Taylor for emphasizing the importance of the method by analysis. However important it may be in treating adults it is not applicable to young children for they are not able to follow the analyses of a complicated psychic problem and in most cases they have forgotten the original trauma, physical or psychic, and consequently their troubles do not lend themselves to analysis. Dr. Taylor said the suggestive method as used was more or less a punishment. In fracture the children do not regard it as such, if properly used. I have had children take bad tasting medicine or ask for faradic current, believing it was to cure them, at the same time dreading the drug or electricity. I believe the suggestive method is the only practical method with children.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY.

The regular meeting of the Middlesex East District Medical Society was held at the American House, Boston, Dec. 17, 1913, thirty-one members being present. A. E. Small, M.D., Secretary. The paper of the evening was read by Dr. John L. Morse of Boston, on

INFANT FEEDING AND DIGESTIVE DISTURBANCES.

Abstract: The importance of breast feeding was emphasized, calling to mind that if only one or two breast feedings were possible daily the infant would handle the bottle all the better.

The only substitute for breast feeding is some modification of cow's milk. There is no reason for giving any proprietary food as there is nothing in any of them which cannot be put into the milk at home or in the laboratory. If a proprietary food agrees and modified milk does not, it simply means that the doctor has not thought of the right thing to use; he has not made the food fit the baby. We must have a clean milk to start with. In the fall we see certain cases of disturbed digestion because the cows have had too much green corn or too many apples. In the winter the freezing of milk alters the emulsion of the fat and produces a disturbance the cause of which is not often recognized.

In prescribing modified milk (which simply means changing cow's milk) we think of the food elements we want and the proportions. This leads us to percentage feeding, which is merely calculating accurately what we want to give. There is often difficulty in deciding what we want to start on. Tables, which are formed on the basis of experience for well babies, are given to help us tell what the baby probably can take. After the first mixture the feeding ought to be based on definite indications as shown by the character of the stools, presence of gas, vomiting, etc. Taking in detail some of the indications showing an excess or deficiency of one of the food elements, we will consider first, fat. If there is too little fat there is apt not to be any gain in weight. If too much, there is vomiting, with an odor to the vomitus of fatty acids, infant may lose its appetite, have gas, or abnormal stools, one of three types usually. First, oily type.—if the stool is rubbed on paper and the paper let dry, it has the appearance of oiled paper; second, the presence of small, soft curds; third, the soap stool, dry, light colored and crumbly. The sugars are the sources of energy and not tissue builders. The fat and sugar can be used to a certain extent interchangeably, but the fat holds liquids in the cells better. Milk sugar is the normal sugar and because it is slowly broken up it remains a source of energy for a long time. Maltose is much emphasized at present. Pure maltose is a laboratory product and too expensive to use. What is used is a mixture of dextrine and maltose, no two mixtures being alike. Dextrose is the sugar of the blood and as such is immediately available, no energy being wasted in changing it to another form of sugar nor in storing it as glycogen. A feeble baby with no glycogen in its liver or muscles needs all its energy for digesting its food, so that the maltose dextrine preparations, which are the most easily convertible to dextrose are the best. The ordinary baby has plenty of glycogen or readily available energy and he needs a sugar more slowly broken up and one which will not flood the system. Thus for him lactose is the best sugar. Cane sugar lies in between the two for availability, so has no necessity except for cheapness. A well baby will take any kind of sugar but a sick one is another proposition.

The proteids are the tissue builders and if not high enough in proportion the infant will starve to death. Casein and whey are the two forms of proteid. Proteid indigestion is shown by the presence of gas and stools, either dark brown watery with a foul musty odor, or with large hard curds. If casein is not easily digested we can do various things to prevent large curds from forming. First, we may dilute the mixture; second, may use whey; third, may boil the milk; fourth, may add cereal water; fifth, may add an alkali; or, sixth, may add sodium citrate.

A breast-fed baby gets no starch, but it has a pancreatic starch ferment present at birth. Clinically, it is wiser not to give starch before the third month except for some definite purpose. The main object is for the colloidal action in preventing large casein curds. Three-quarters of one per cent. has as much effect as a larger amount.

With regard to pasteurizing milk, there is no theoretical or clinical evidence to show that it hurts the milk as a food. Nevertheless statistics for the past two years have shown a steady increase in the percentage of cases of scurvy coincident with the increase in the use of pasteurized milk, which is at least suggestive.

Fermentation of milk sugar is shown by acid vomitus, stools which are loose, green, frothy and irritating to the buttocks. In treatment, cut down the quantity of milk sugar and also the fat, as it is secondarily involved. Finkelstein's eiweiss milch fits the case perfectly but is no better than skim milk and barley water boiled. Then begin and work back. Here maltrose dextrine is valuable and fills a place no other sugar will.

Disturbance from starch gives fermentation, hard, dry brown stools, easy to recognize with tr. iodine.

Do not mistake it and mucus, which is always present in stools following the use of castor oil. In infectious diarrheas the bacteria penetrate the walls, get into the circulation and cause toxic substances. In all of them there are small dejections with mucus and blood due to the action of the bacteria in the walls of the intestine. There may be a variety of organisms which necessitate different lines of treatment. The dysentery bacillus when grown on carbohydrate food does not form toxic substances, hence give carbohydrate food in the treatment. The use of frequent doses of castor oil and starvation is the worst possible treatment, as all the intestinal secretions are proteid in nature. The gas bacillus, on the contrary, thrives on sugars and starches; so give a proteid diet. Here buttermilk is also useful, as the lactic acid bacillus is antagonistic to the gas bacillus. The milk test often does not work for the amateur, so that he practically has to try the influence of one or the other diets on the infant, and if it grows worse, switch. Usually one infection or the other prevails during a given season.

After a brief discussion the meeting adjourned.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

STATED MEETING, WEDNESDAY, NOVEMBER 5, 1913, AT 8 P. M.

The President, DR. JAMES C. WILSON, in the chair.

THE RESULTS OF THE TREATMENT OF POLIOMYELITIS BY OPERATIVE MEASURES. ILLUSTRATED BY CASE.

DR. G. G. DAVIS: In recent years operative surgery has opened a new field in the treatment of infantile paralysis or acute poliomyelitis. The patient presented tonight is an illustration of what can be done for this class of cases. I strongly suspect that as we become better informed as to what can be achieved by operative procedures in these cases they will be earlier resorted to than at present is considered advisable. The patient, a boy of thirteen, was paralyzed at the age of one year. The parts involved were the lower part of the trunk and left lower extremity. The back was partly affected, also the region of the hip and almost all of the muscles of the thigh with the exception of the biceps or external hamstring and one or two of the muscles moving the foot. As he grew older a knock-knee developed. He wore braces for seven years. The first operation was an osteotomy of the femur, done in December, 1910. In the following March an arthrodesis was done to fix the flail foot. The biceps femoris tendon was loosened from its attachment on the fibula and inserted into the top of the patella; and while the foot was strongly inverted the fascia lata was slit in a longitudinal direction and sewn fast with silk sutures behind the greater trochanter. He wore a brace for a while until the various operative procedures had well healed, and then discarded it, and his walking has improved ever since. This operation (devised by the writer) was performed with silk buried suture, but chromicized catgut is now used.

The fixation of the ankle eliminated movement at that joint and also to a considerable extent of the joint between the astragalus and os-calcis. The mediotarsal joint, in front of the ankle, not being interfered with, allowed the anterior part of the foot to droop somewhat, but not enough to allow the toes to catch in walking. The lateral movement of the foot was also eliminated to a sufficient extent to remedy the tendency to valgus. The transplanted biceps muscle can be seen to contract perfectly and holds the knee back in walking so that it does not tend to collapse when weight is put upon it. The holding of the thigh in a position of internal rotation by fastening the fascia lata to the posterior edge of the greater trochanter corrected the outward turning of the foot in walking.

DISCUSSION.

DR. J. TORRANCE RUGH: I do not believe that a case of greater orthopedic importance could have been presented to us. Dr. Davis has shown some of the advanced work with this most troublesome class of cases and has obtained about as good results as one can possibly hope for. In Italy I saw Professor Putti do an operation which to my mind takes the place of arthrodesis for the ankle joint especially in cases of this type. He separates the anterior tendons from the muscles high up on the leg. Then a hole is drilled through the tibia, and the tendon ends are drawn through this hole and fastened subperitoneally in front of the tibia, some of the tendons being passed through from one side and others from the other side. He thus shortens the tendons and leaves purely tendonous structure between attachment and insertion and the tendon acts as a ligament and will not stretch. It is the badly degenerated muscle tissue which stretches. If there is sufficient contractive power on the part of the posterior tendons the anterior ones can be shortened and the foot maintained in the proper position, or if there are live muscles anteriorly, the posterior tendons are shortened in the same manner and the necessity of an arthrodesis is avoided. The demonstration given in Dr. Davis' case in the transferred power of the hamstring tendons is one of the best examples of what can be done in these cases. Operative measures, of course, should not be undertaken until it is certain that complete, or all possible regeneration, has taken place, and that there is no possibility of return of power in the muscles. Not until about six years after the onset of the paralysis should operative measures be instituted.

DR. WILLIAM J. TAYLOR: I can only congratulate Dr. Davis upon the wonderfully good results obtained in the use of this modern method of treating these otherwise hopeless cripples.

DR. CHARLES K. MILLS: I do not think that in my rather considerable experience with cases of poliomyelitis treated by older methods, and somewhat different forms of operation, I have ever seen a case in which the results were so very good.

DR. DAVIS (closing): My desire in bringing before you this case was to exhibit a case which was practical, a badly crippled patient, one who had been wearing apparatus ad nauseam, and to show that if one is willing to take the time and trouble, a great deal can be done for such patients. Often they can be enabled to walk entirely without apparatus, as in this case. This special boy was selected because he happened to combine in his own

person paralysis of three different parts of the body, the foot, the knee and the hip.

RESEARCH STUDIES IN PSORIASIS.

(Lantern Demonstration.)

By DR. JAY F. SCHAMBERG and DR. A. I. RINGER, DR. G. W. RAIZISS and DR. JOHN A. KOLMER (by invitation).

DR. SCHAMBERG: A careful study was made of the protein metabolism of eight psoriasis patients and the following observations noted:

1. That on a given protein diet a psoriatic subject eliminates less nitrogen in the urine than does a normal individual on a corresponding diet. The urinary nitrogen in some instances reached a level lower than has ever been recorded.

2. Patients suffering from psoriasis exhibit a remarkable retention of nitrogen. This retention appears to be proportional, in a general way, to the extent and severity of the eruption.

3. The nitrogen is retained to a greater degree than has been observed in connection with any other condition, and is retained with great ease on a diet low in nitrogen and insufficient in caloric value, and one upon which a normal individual would fail to maintain equilibrium.

4. Experiments with urea feedings show conclusively that the nitrogen retention cannot be attributed to any disturbance in the eliminative capacity of the kidneys.

5. Patients with extensive psoriasis may lose very large amounts of nitrogen in the exfoliated scales, which consist of almost pure protein.

6. The retention of nitrogen in most of our cases is greater than can be accounted for by the protein lost in the scales, and it may persist even after scaling has ceased and the eruption has virtually disappeared.

7. A low nitrogen diet has a most favorable influence upon the eruption of psoriasis, particularly when the latter is extensive. Making all reservation suggested by scientific caution, we feel that there can be no doubt that severe cases of psoriasis improve under such a diet almost to the point of disappearance of the eruption.

8. Conversely, a high nitrogen diet exhibits an unfavorable influence on psoriasis, commonly causing an extension of the eruption.

9. Whether a high nitrogen diet can stimulate an outbreak of psoriasis in a psoriatic subject, who is at the time free of the eruption, has not yet been determined.

10. The great proliferation and exfoliation of cells by the skin in psoriasis demand a large supply of protein, which can only be procured from the lymph and blood streams. This protein supply may be derived from the ingested food, and a possibility exists that the great demand of the diseased skin for protein may also be satisfied by the protein reserve in muscle tissue, which thus may become depleted and later require restoration. This would explain the ready and persistent retention of nitrogen in our cases.

11. A protracted low protein diet may diminish the proliferative activity of the skin by diminishing the supply of the principal building material, namely, protein. On the other hand, a high protein diet may stimulate the proliferative activity of the cells by furnishing an abundant supply of the necessary protein.

12. We deem it premature at the present stage of our research studies to commit ourselves to an hypothesis as to the primary cause of psoriasis. Our investigations are being continued and extended in various directions.

TRANSACTIONS OF THE AMERICAN SOCIETY FOR THE PROMOTION OF CLINICAL RESEARCH, WASHINGTON, D. C.

MAY 5, 1913.

(*Concluded from page* 209.)

EXPERIMENTAL CARDIAC HYPERTROPHY STUDIED BY MEANS OF THE X-RAY.

DR. HENRY A. CHRISTIAN, Boston:

Owing to marked variations that occur in the weight of rabbits and the size of their hearts, it is not easy to determine whether or not in a given rabbit hypertrophy and dilatation of the heart has been produced. In following cardiac lesions produced by intravenous injections of adrenalin and spartein, it was found that though very frequently myocardial lesions were produced which led to cardiac hypertrophy and dilatation this was not a constant result, and it was of interest to know whether at a given stage of the experiment changes in heart size had been produced. It was found that by means of the x-ray variations in the size of the heart could be easily determined. In a series of animals studied by this means, it was found that very considerable increases in the weight of the animal might occur without there being marked changes in the size of the heart. Following injections of adrenalin and spartein very considerable increases in the size of the heart were produced. It was also found that enlargement of the heart continued for a long period after injections of these drugs had ceased, and that in some of these hearts actually less pathological change other than hypertrophy of muscle fibres, was found in the myocardium than in animals killed at a shorter time after the doses of spartein and adrenalin, though the hearts of the latter did not show so great enlargement.

DISCUSSION.

DR. S. J. MELTZER, New York: I have no doubt Dr. Christian is familiar with the work of Gruber of our laboratory, who has made very many estimations of the comparative size of the heart and the animal; the relation is rather constant, but he has found that the estimates must be made after the removal of the contents of the abdomen. So it would seem that in making measurements of the heart by x-ray much would depend on the contents of the abdomen and the position of the diaphragm.

Discussion closed.

DR. H. A. CHRISTIAN, Boston: We are interested in getting the average heart weight as compared with the body weight. I am aware of Gruber's work, but our efforts were directed toward estimating the heart weight with the heart *in situ*.

KIDNEY FATIGUE WITH DIURETICS IN EXPERIMENTAL NEPHRITIS.

DR. HERMAN O. MOSENTHAL, New York:

Researches conducted by Schlayer[1] on human nephritis showed that diuretics used in too large doses, will in certain cases suppress urinary secretion rather than augment it, that is to say, they will cause kidney fatigue. In other instances sodium chloride effected the same results. It was in order to elucidate some of these phenomena that the following experiments were undertaken.

Rabbits anesthetized by the subcutaneous injection of urethane, were given three successive intravenous injections of 5 ccm. of 5% solution of sodium chloride, followed by three successive intravenous injections of 2 ccm. of 5% caffeine sodium benzoate solution. The diuresis was measured by collecting the urine at ten-minute intervals; the reaction of the intrarenal vessels by an oncometer applied to the left kidney. The experiments were first performed on normal rabbits and subsequently on those in which experimental nephritis had been produced by potassium chromate and uranium acetate. The latter were subjected to the tests from a few hours up to several days after the poisons had been administered so that the progress from one phase to another of the nephritis could be satisfactorily studied. The anatomical difference between the two forms of nephritis is very slight. Both poisons damage the cells of the convoluted tubules very markedly and the glomeruli only slightly.

Normal rabbits showed no signs of diminished renal function after the series of three salt injections but a very marked fatigue after the twice-repeated use of caffeine. This fatigue manifested itself in the inhibition of the diuresis as well as in the diminished dilatation of the kidney vessels. Salt injections following the caffeine series again produced diuresis, thus showing that the mechanism of salt and caffeine diuresis is not by any means identical.

RESULTS WITH CHROMATE NEPHRITIS.

In the earlier stages of chromate nephritis salt produces a diuresis and increases the dilatation of the renal vessels, much as in the normal kidney. Caffeine, however, very rapidly causes kidney fatigue, much more rapidly than in the normal kidney, so that in some cases anuria results and the kidney vessels contract instead of dilating. Furthermore, the after-effects of the caffeine are seen when salt is subsequently administered intravenously and no longer calls forth a diuresis as it did in the normal kidney after the use of caffeine. The demands put upon this form of nephritic kidney by the sodium chloride must be responisble for the fatigue evinced by the kidney after caffeine, for if the caffeine be preceded by only one dose of sodium chloride instead of several, the evidences of fatigue do not appear.

In this connection an interesting point is observed in the final stages of both chromate and uranium nephritis, when anuria or very much diminished kidney secretion has been produced. In these instances it is found that although salt and caffeine no longer cause diuresis, the kidney vessels are still dilated. These and other similar results obtained in the course of these experiments lead to the conclusion that the quantity of urine does not constantly parallel the volume of blood flowing through the kidney, as many physiologists would have us believe, but that diuresis may occur without dilatation of the renal vessels and vice versa.

[1] Verhandl. d. Cong. f. innere Medizin, 1912, 501.

RESULTS WITH URANIUM NEPHRITIS.

In the initial periods of uranium nephritis the effects of sodium chloride are approximately the same as those seen in the normal animals. Caffeine causes no decrease in diuresis; however, the dilatation of the blood vessels is markedly diminished, which may be considered a sign of fatigue. This is another example of the lack of parallelism between dilatation of the renal vessels and diuresis. In the terminal stages of this as well as of the chromate type the blood vessels of the kidneys are still dilated but no urine is secreted. In this form of poisoning a type of functional reaction may be seen intermediate between the initial and terminal periods, *i.e.* taking the degree of poisoning as a guide. Schlayer has designated this as the "Zwischenstadium," intermediate stage. It is characterized in this series of experiments by a reaction which is different from that previously seen. The control period shows a kidney putting out an approximately normal amount of salt and water. The injection of sodium chloride results in a rise of the oncometer lever (blood vessel dilatation) but no diuresis. Caffeine, on the other hand, produces an enormous diuresis and in some cases an enormous dilatation of the kidney vessels.

Thus there are produced two diametrically opposed conditions. In the one case salt results in a good response on the part of the kidney, and caffeine in marked kidney fatigue (chromate poisoning), in the other, salt produces no diuresis and caffeine an enormous one (intermediate stage of uranium poisoning). Yet the pathological conditions of these kidneys are very similar and the final stages in both forms of poisoning the same, namely a total lack of response to both salt and caffeine.

Both of these conditions may be seen in human nephritis: suppression of urine by diuretics (as in the chromate type), lack of diuresis after administration of salt (as in the uranium type), sometimes to be dispelled by the exhibition of small doses of diuretics of the caffeine group.

A careful study of cause and effect along these lines may in the future enable us to obtain diuresis in many cases of nephritis where the blind pushing of drugs has no effect.

DISCUSSION.

DR. JOS. L. MILLER, Chicago: Were the effects of caffeine transitory or permanent?

DR. S. J. MELTZER, New York. Was urethane used in all of the cases? No notice appears to have been taken of the fact that urethane renders the kidney permeable unless it is used with adrenalin.

Discussion closed.

DR. H. O. MOSENTHAL, New York: It is difficult to say whether the effects of caffeine are permanent or not; in some cases caffeine would later produce some effect, but in nephritis caused by uranium or chromate the effects of the caffeine were permanent.

PERCUSSION OF THE PARAVERTEBRAL REGION ON THE AFFECTED SIDE IN THE DIFFERENTIATION OF PNEUMONIA AND PLEURISY WITH EFFUSION.

DR. FREDERICK T. LORD, Boston:

It is not generally recognized, although already noted, that in croupous pneumonia affecting the

lower lobes and uncomplicated by an effusion the dullness on the affected side is usually less marked in the paravertebral region than over other parts of the chest.

Among a large number of cases with pulmonary and pleural disease observed during the past year at the Massachusetts General Hospital were eighteen of croupous pneumonia affecting the lower lobes with the usual signs of consolidation and without evidence of pleural effusion. In sixteen of these cases a zone of relative resonance about two fingers' breadth in width could be demonstrated in the paravertebral region on the affected side. In one of the sixteen coincident with the development during convalescence of signs suggestive of pleural effusion but without displacement of the heart or Grocco's triangle the paravertebral resonance gave place to dullness and exploratory puncture showed empyema. In two of the eighteen cases of apparently uncomplicated lobar pneumonia affecting the lower lobes the paravertebral region on the affected side was dull, thus forming an exception to the findings in the other sixteen cases. In one of the two a crisis on the sixth day, rapid resolution and speedy convalescence left us in doubt as to the meaning of the paravertebral dullness. In the other case there were signs at the left base of consolidation over an area about the size of the palm with dullness reaching to the spine but at autopsy croupous pneumonia of the left lower lobe without an effusion was found.

The strip of relative paravertebral resonance on the affected side has seemed obvious only in the presence of extensive croupous pneumonia and absent or doubtful with small areas of consolidation at the bases from other causes. In explanation of its presence in lobar pneumonia it may be suggested that the paravertebral region on the affected side takes its resonance from uninterrupted spinal vibrations reinforced by compensatory emphysema of the unaffected lung. The supposition that compensatory emphysema plays a part in its production finds some support in the presence of an obvious degree of relative resonance only in cases with extensive pulmonary consolidation. Free pleural effusion on the other hand distends the pleural sac and interrupts these spinal vibrations with the production of dullness on one or both sides of the spine in accordance with the size of the effusion.

The presence of a zone of relative resonance in the paravertebral region on the affected side with croupous pneumonia and dullness with pleural effusion thus appears to be of some value in the differentiation of the two conditions.

DISCUSSION.

DR. W. S. THAYER, Baltimore: I suppose Dr. Lord uses the term paravertebral in the strict sense and not only in reference to the triangular area of dullness on the opposite side.

Discussion closed.

DR. F. T. LORD, Boston: Dr. Thayer's supposition is correct, and the area of relative resonance is about two finger-breadths over the extent of the infiltration.

OXYGEN CONTENT OF THE BLOOD IN LOBAR PNEUMONIA.

DR. F. W. PEABODY, Boston:

The oxygen content of the venous blood was studied in 25 cases of lobar pneumonia. Of 17 cases which ran an uncomplicated course 15 showed at all times a normal oxygen content, while two showed a transient decrease in the oxygen. In 8 fatal cases in which the blood was studied within 12 hours of death the oxygen content showed a progressive fall, and specimens of the blood saturated with oxygen showed a progressive decrease in the oxygen capacity of the blood reaching its minimum at the time of death. A similar decrease in the oxygen content of the arterial blood and in the oxygen capacity of the blood was demonstrated in fatal pneumococcus septicemia in rabbits. Butterfield and Peabody have shown that a diminution in the oxygen capacity produced by the action of the pneumococcus on blood and hemoglobin solutions is due to a formation of methemoglobin. It seems probable that the decrease in the oxygen content of the blood in fatal cases of lobar pneumonia in man is also due to the conversion of part of the hemoglobin into methemoglobin.

DISCUSSION.

DR. R. I. COLE, New York: These observations are of great importance in that they show that the blood changes in lobar pneumonia are due to toxic substances. There are those who have regarded the changes as due to acids derived from tissue waste, the acids producing methemoglobin in the blood.

DR. R. WEIL, New York: Is the cyanosis in pneumonia due to methemoglobin or to reduced hemoglobin?

Discussion closed.

DR. F. W. PEABODY, Boston: I cannot answer Dr. Weil's question certainly, but the cyanosis is probably due to reduced hemoglobin.

IRON INFILTRATION OF THE FIXED AND WANDERING CELLS OF THE CENTRAL NERVOUS SYSTEM.

DR. D. J. MCCARTHY, Philadelphia.

The result of a series of experiments on animals were inconclusive in demonstrating a structural change in the ganglion cell as a result of long-standing venous stasis or thrombosis occurring at the time of delivery. The experiments have not yet been completed, but as far as they have been carried, an artificial infiltration of hemosiderin in the ganglion cells was made in the brain from a patient who suffered from an extensive hemorrhagic encephalitis in the cortex. The iron reaction was not demonstrated in the cortical ganglion cells in this case but was obtained in a very striking cell reaction in the plasma-like cells of the pia arachnoid and in the elastic coats of the smaller cortical arteries.

CARRIERS OF ANTERIOR POLIOMYELITIS.

DR. WM. LUCAS, BOSTON, Boston.

Report on experimental work with the virus of anterior poliomyelitis in human carriers. The workers reported a case in a child that had first attack of paralysis two years and four months before the present experiments; and a recurrent attack four months before the experiments. The nasal secretions from the case were secured and passed through a Berkefeld filter and were injected intracerebrally into monkeys with typical paralysis resulting. Two successful series were tried out and carried on to the second generation, so proving the presence of the virus in human carriers.

THE METABOLISM, PREVENTION AND SUCCESSFUL TREATMENT OF RHEUMATOID ARTHRITIS; SECOND CONTRIBUTION.

DR. RALPH PEMBERTON, Philadelphia:

Metabolic and clinical observations were made on a series of 18 cases of rheumatoid arthritis.

The metabolism was studied with respect to the nitrogen, ammonia, creatinin, depression of the freezing point, titratable acidity, chlorides and total, preformed and aethereal sulphates of the urine; also the nitrogen of the feces.

Observations were, further, made on the urea and non-coagulable nitrogen of the blood by Folin's new methods. The elimination capacity of the kidneys was studied and anaphylactic experiments were conducted to detect the passage through the bowel of heterologous proteid.

Of the 18 cases studied and treated, two had had the disease more than 18 years. All were treated by dietary measures, and no other medication, with the result that the disease was arrested in all but two, who were distinctly benefited.

In the light of later knowledge, these also could, without reasonable doubt, have been made to respond more. The restoration of function was surprising and information of interest was obtained as to the nature of the atrophic, hypertrophic and infectious varieties, etc.

Rheumatoid arthritis apparently belongs in the general category with gout and diabetes, in that there is a level of metabolic equilibrium at or below which the patient has no symptoms. Above this level, joint disturbances occur. Early cases are easily cured and it seems justifiable to say that, apart from permanent bone destruction or overgrowth, the disease can be arrested and is preventable.

A UNILATERAL TYPE OF INTERMITTENT CLAUDICATION OF THE LUMBAR REGION; WITH REMARKS ON BACKACHES OF VASCULAR ORIGIN.

DR. J. RAMSAY HUNT, New York:

A further contribution to intermittent claudication of the lumbar region. Description of two cases presenting the typical symptoms of this affection, strictly unilateral in localization and confined to the musculature of the lumbar region. In one case there was an aneurysm of the abdominal aorta.

Symptoms consist of pain, cramp-like sensations and weakness in the affected region, which occur regularly during exertion and cease immediately after a brief period of rest. These symptoms never occur in the recumbent posture or while sitting with the back supported, but always appear after muscular exertion, exactly as in intermittent claudication of the extremities, all phenomena promptly subsiding, when the muscles of the back are placed at rest.

A description of a clinical type of backache, occurring in elderly people and of vascular origin: It is characterized by weakness, stiffness and aching pain in the muscles of the lumbar region coming on after exertion and ceasing immediately after a brief period of rest. The movements of the spinal column are normal, there is no tenderness on pressure and the lumbar distress is only present after exertion, never in the recumbent posture or while sitting. In such cases the lumbar distress is even produced by forward bending movements of the spine which causes an increased activity of the muscles concerned.

The pathology of these backaches as in the more pronounced type of the lumbar intermittent claudication is an interference with the blood supply to this region through the lumbar arteries,— either from arteriosclerotic affections of the lumbar arteries themselves, or of the abdominal aorta from which they take their origin. The blood supply is sufficient so long as the muscles are at rest, but the increased demand required during activity is not forthcoming and as a consequence the symptoms of muscle ischema are the result. As the muscular activity ceases the circulation is again sufficient and the symptoms promptly subside.

The author is of the opinion that this group of ischemic backaches in the more advanced period of life is by no means a small one and that many of the stiff and painful backs at this period of life may be of vascular origin.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY.

The monthly meeting of the Middlesex East District was held as usual at the American House, Jan. 21, 1914, President Keleher presiding. A. E. Small, M.D., Secretary.

Owing to the severe storm only eleven members were present to hear an informal talk by Dr. Herbert B. Howard, Superintendent of the Peter Bent Brigham Hospital. He gave a brief history of Peter Bent Brigham and the accumulation of his fortune which was left to the people of Suffolk County. Plans of the hospital were shown, illustrating how the greatest amount of sunlight and fresh air are obtained, how the beds may be easily rolled out of doors, suspected contagious cases easily isolated and removed if they prove contagious. The unique arrangements for heating the floor of the wards, and many other features of construction and administration. The hospital has an unusually large medical and surgical staff in proportion to the number of patients, in order that the unusual and difficult case, which is the kind desired, may be adequately and thoroughly studied.

Book Reviews.

A Practical Treatise on Medical Diagnosis. By JOHN H. MUSSER, M.D., LL.D. New (sixth) edition, revised by JOHN M. MUSSER, JR., B.S., M.D. Octavo, 793 pages, with 196 engravings and 27 colored plates. Philadelphia and New York: Lea and Febiger. 1913.

The sixth edition of Musser's Practical Diagnosis has been revised by his son. This edition is somewhat more condensed than the earlier editions. For those students and general practitioners who wish a single book covering the important points of medical diagnosis this revised work should be eminently satisfactory.

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CHRONIC INTESTINAL STASIS.

THE subject of chronic intestinal stasis, which has been attracting so much attention of late, has received a new impetus from the recent visit to this country of Sir Arbuthnot Lane of London, whose work in this direction may fairly be described as little short of epoch-making. Lane, as is well known, holds that practically all chronic illness has its real origin in the intestines, and has repeatedly made the assertion that a long series of affections, including such grave conditions as tuberculosis, cancer, rheumatoid arthritis, and Bright's disease, are brought about by the enfeebled resistance which the tissues, poisoned as the result of intestinal putrefaction and intoxication, offer to the invasion of microbes or other sources of infection. As was pointed out by Dr. W. Van Valsah Hayes in a recent paper, it is certainly startling that a man whose life work has been almost exclusively of a surgical character should have advanced such a claim. Dr. Hayes' paper was one of three in a symposium on chronic intestinal stasis at the December meeting of the Medical Association of the Greater City of New York, in which the medical aspect of the subject was considered by him, its radiological aspect by Dr. A. Judson Quimby, and its surgical aspect by Dr. William Seaman Bainbridge. This was a noteworthy and admirable piece of "team work" on the part of these gentlemen, as the patients whose cases were described, a number of whom were present and anxious to show the excellent results which had been achieved, had had the benefit of the coöperative services of the three.

In an address delivered not long since at the North-East London Post-Graduate College, Lane gave the following definition: "By chronic intestinal stasis I mean that the passage of the contents of the intestinal canal is delayed sufficiently long to result in the production, in the small intestine especially, of an excess of toxic material, and in the absorption into the circulation of a greater quantity of poisonous products than the organs which convert and excrete them are able to deal with. In consequence, there exist in the circulation materials which produce degenerative changes in every single tissue of the body and lower its resisting power to invasion by deleterious organisms." The point of practical interest is, he said, that if the drainage scheme be made to work efficiently, or, in other words, if the delay of material in the small bowel be met effectually by mechanical means or by operative interference, the resisting power of the tissues is such that they can destroy the organisms or the poison producing these conditions, if not too advanced, or if cancer has not developed. Lane has so frequently described the mechanical factors which bring about the stasis that it need only be said here that he believes that, owing to unsuitable diet in infancy, and to the habitual assumption of the erect position, delay of fecal material takes place in the large intestine, the cesspool of the alimentary tract, or, as it can best be described, "the general drainage system of the body." In consequence of this, new membranes or resistances to downward displacement are forced by what he terms "the crystallization of lines of force" upon the surface of the peritoneum, along which strain is specially exerted. Dr. Hayes gave a summary of Lane's long list of conditions resulting from the autointoxication of chronic intestinal stasis, and stated that the marked symptoms in his own cases have been debility, loss of weight, headache, nervous irritability and emotional states, lack of concentration, drowsiness, numbness, palpitations, poor circulation, soreness of joints, constipation, and, in cases with gastric complications, bad taste, belching, regurgitation of food and acid fluid, nausea and vomiting, erosion of the teeth, and pain between the shoulder joints. Ulcer near the pylorus was a rather frequent complication. The marked physical signs have been pallor, a sallow color or slight

pigmentation of the skin, cold, moist hands and feet, and the following abdominal signs, which were very constantly present and, taken in connection with the toxic symptoms, made the diagnosis extremely simple: 1. Dilatation of the duodenum, readily mapped out by means of percussion with pressure. 2. Pressure paradox. In cases with dilated duodenum when, with the patient in the semi-recumbent or supine position, pressure is made backward and upward for about thirty seconds by the hand placed just below the umbilicus; this usually results in the undoing of the duodeno-jejunal kink present, permitting the duodenum to empty itself. 3. Inflated ileum, shown by a marked tympanitic note to the left of and below the cecum. 4. Corded colon. Frequently the left iliac colon is felt as a rope-like body directly behind the abdominal wall, a condition apparently due to spasm of the portion of bowel just above the sigmoid flexure. To what degree it should be considered abnormal is debatable. Jordan, who has done much valuable x-ray work in conjunction with Lane's investigations, has made the statement that the occurrence of duodenal distention is so constant in the subjects of intestinal stasis that he has come to regard it as a trustworthy indication, equally significant whether positive or negative. As to treatment, Dr. Hayes regards liquid paraffin or Russian mineral oil, on the use of which Lane lays so much stress, as holding first place in the way of medication. As it cannot be absorbed, it renders the stools soft, and its action as a lubricant is stated to be so efficient that it can overcome many of the troubles arising directly or indirectly from the stasis. It is not always sufficient by itself, however, and in some instances must be assisted by the administration of suitable cathartics. The food, without being coarse or irritating, should be gently laxative, and should not contain an excess of protein or a large proportion of readily fermenting elements. Exercise of various kinds, as well as massage, is of great value, and correct poise or carriage should be insisted upon,—the patient should learn to stand and sit with chest thrown forward, chin and shoulders back, and abdomen drawn upward. In most cases a suitable belt, corset or spring support is indispensable. Surgery, he believes, should not be thought of in the great majority of instances, but is indicated in the marked cases failing to respond to persistent competent medical treatment.

In this opinion Dr. Bainbridge entirely concurred, stating that the prevention of chronic intestinal stasis with its aftermath of disturbed function, disease and death, was the prime object sought in the study of this subject. The vast majority of cases, he said, should have been prevented, while hygienic and medical treatment, if instituted sufficiently early, would cure a large proportion. In many instances, however, there came a time when it became necessary to invoke the aid of the surgeon. Whether, like an expert plumber, he should patch and mend, so to speak, the defective drainage system, and thus ward off trouble, or should employ more radical measures, was a nice point to be decided according to the exigencies of the individual case. One heard of the conservative and the radical treatment, but there was no hard-and-fast distinction between the two; for the physician who waited, fearing to resort to surgery, and by this delay rendered necessary, ultimately, a severe operation, was less conservative than one who, by employing milder surgical measures at first, obviated the necessity for a radical procedure. In some cases the drainage system had been neglected until a part of the human plumbing must be removed—that was colectomy; in others it was possible to sidetrack the damaged part—that was short-circuiting. In still others the parts could be patched up; the tubes could be straightened, the angles corrected. It was often difficult to determine to just which type an individual case belonged—in fact, it had to be freely admitted that today we were feeling our way along, endeavoring to profit by experience in order to more accurately place the border-line cases. For over seven years Dr. Bainbridge has been in close touch with Sir Arbuthnot Lane, studying with him many of his cases before, during and after operation, and this observation has been supplemented by the experience gained in a large number of cases of his own; so that today he does not hesitate to short-circuit or colectomize where he is convinced that less radical measures will not suffice. The cases he described on the occasion in question were of the middle type between the strictly medical ones and those calling for radical operations, and the results of the various procedures adopted have been eminently satisfactory for, as he said, these patients, formerly suffering from the baneful effects of chronic intestinal stasis, had literally been made over through surgical intervention

based upon the mechanical causes of intestinal obstruction, as described by Lane. This subject certainly presents a wide field for research on the part of both physician and surgeon, and such work has now opened the door of hope for many a one who would otherwise have been doomed to chronic invalidism.

THE ABDERHALDEN REACTION APPLIED TO DIAGNOSIS IN PSYCHIATRY.

IN his little book of 110 pages, entitled "Schutzfermente des Tierchen Organismus," Abderhalden lays down his theory of protective or defensive ferments (Abwehrfermente). These ferments make their appearance in the blood whenever an abnormal or a foreign protoplasm is introduced into the system, and it is believed that the particular kind of protective ferment thrown off into the blood varies with the tissue from which the protoplasm is derived and is specific for that tissue. Abderhalden has also elaborated a simple method of recognizing or identifying these ferments.

As a result of this theory there has been developed a movement which certainly seems likely to bring about considerable advances in medical diagnosis and medical research. Abderhalden himself followed up his book with a paper[1] in which he gave his method of diagnosing pregnancy. Recently this principle has been extended to the diagnosis of cancer (carcinoma and sarcoma), and has been applied to the differential diagnosis of certain nervous and mental disease, particularly dementia precox, epilepsy, manic-depressive insanity and general paresis. Many other possibilities loom up before one's eyes. It is possible that later on the technic will be applicable to the diagnosis of the various infectious diseases as well as of organic diseases in various parts of the body.

The technic, very briefly stated in a general way, is as follows: The colloid albumins are removed from the substance to be used as antigen, conveniently called substrat (which may be placental tissue, thyroid gland, ovary, testis, etc., as the case may be), and a mixture of them is placed in several dialyzing tubes, in one of which the serum to be tested, and which is suspected to contain the protective ferments, which are specific for the particular antigen used, is placed. This is incubated, with the result that the albumin is decomposed, hydrolyzed and peptonized with the production of peptone, which latter passes through the dialyzer into the water in which the dialyzer tube rests, and when the peptone comes in contact with the ninhydrin solution contained in the water, a bright violet color appears. The other dialyzing tubes are used as controls, the serum of normal individuals or of individuals whose blood is not suspected of containing the specific protective ferments being tested for, is added, but no color appears.

This editorial is concerned especially with the application of the Abderhalden test to diagnosis in psychiatry. Fauser of Stuttgart published frequent papers on this subject. He used various antigens or antigen-like substances and determined their relative hydrolytic or proteolytic reaction with the sera of patients with various nervous and mental diseases. This work was followed up by that of other investigators, including Wegener, Bundschuh and Roemer, Mayer, Byer, Lampi and Fuchs, Neue, Theobauld, Steising, Fischer and Bensinger. The results up to date seem to lead one quite definitely to the following conclusions: The serum of a patient with dementia precox gives a positive reaction to—that is, they hydrolize—testicular tissue (if the patient be a male), and ovarian tissue (if the patient be a female) much more markedly than it does any other tissue. In no cases of epilepsy, hysteria or manic-depressive insanity was there a positive reaction to this test when the genital glands were used as antigens (or rather as antigen-like substances). The serum of very bad cases of dementia precox, of epileptics (at least when an attack is approaching), and of the majority of cases of general paresis present a positive reaction when human cortical tissue is used as the so-called substrat. In the final stages of paresis reactions are obtained to almost all sorts of substances or antigen-like substances, since all the organs are degenerating.

Here, then, it seems that we have found an almost certain, if not an absolutely certain, method of diagnosing dementia precox. What is more, this test may prove to be of the greatest aid in differential diagnosis in psychiatry, and may be applicable to the very early cases of dementia precox. May it not very well be that this test is applicable to the very earliest stages of incipient dementia precox or so-called prede-

[1] Diagnose der Schwangerschaft mit Hilfe der Optischen Methode und Dialysienerfahrens. *Münch. Med. Wochenschrift*, 1912, June, 1911, vol. 59, p. 1305.

mentia precox, so that we shall be enabled to pick out, from among the wayward youths in our schools, our army and navy, and our criminal courts, those individuals who are only slightly on the road to dementia precox? We can see, therefore, that this test assumes a sociological and medico-legal significance.

MEDICAL LEGISLATION. REPORT OF THE HOUSE COMMITTEE ON TUBERCULOSIS.

THE special committee appointed by the Massachusetts House of Representatives to investigate tuberculosis conditions in this Commonwealth has recently filed its report. The committee held over forty public hearings, and obtained and sifted a large amount of evidence, more or less pertinent to the matter in hand. Its report consists of a careful digestion of this evidence, with conclusions and recommendations derived therefrom.

The committee found that the law concerning the establishment of tuberculosis dispensaries has not been complied with, chiefly on account of the failure of cities and towns to agree as to what constitutes a dispensary. According to the report,

"A dispensary is an indispensable link in the system of the home treatment of the disease, where not only medicine, and other material relief, but teaching as to general hygiene and sanitation may be obtained. The dispensary is an invaluable corollary to the law of 1907, making notification of the presence of the disease compulsory."

The committee therefore recommends that the State Board of Health be empowered to determine a standard of dispensaries, and that communities then be required to conform thereto.

The most important recommendation of the report is for the establishment of a Department of Diseases Dangerous to the Public Health.

"The need of a central authority to supervise the control of tuberculosis is apparent, and has been pointed out by commission after commission. This committee recommends a single head, 'Department of Diseases Dangerous to the Public Health,' with mandatory powers, under the management of the State Board of Health. It seems advisable to use the phraseology as above, rather than simply, 'Department of Tuberculosis,' for the reason that tuberculosis is so declared by the State Board of Health, and because the construction of hospitals, sanitaria, quarantine and inspection are so similar that they should be considered at the same time if economy is to rule.

"The authority of the State Board of Health should be extended to examine all hospitals, sanitaria, asylums, homes, prisons and hospitals handling 'diseases dangerous to the public health,' which includes tuberculosis; and this committee so recommends.

"This committee has been appalled by the revelations of incompetency and weakness on the part of some local boards of health, and by the confusion of authority between them and the State Board of Health. Responsibility should be clearly placed on the State Board of Health, and it should be given authority to supervise the work of local boards."

"The presence in sanitaria, of refractory and incorrigible tuberculosis patients is the despair of superintendents and so serious a menace to the entire system, and to the health of the whole community, that this committee recommends the building of a State hospital where such cases may be segregated. The dismissal of incorrigibles only spreads the plague."

Other recommendations of the committee in its report are as follows:—

"So many communities complained to this committee of financial inability to build tuberculosis hospitals that it is recommended that the debt limit be extended for this purpose so that the hospital law on the statute books may be complied with.

"The State Board of Health should be given power to define the dispensary law and standardize as well as inspect dispensaries; also to provide a plan for a State-wide system of visiting nurses' service; also to provide supervision of all plans for the adequate ventilation of school buildings.

"In accord with the repeated recommendations of the State Board of Health, Section 39 of Chapter 75 of the Revised Laws prohibiting hospitals with 100 rods of an inhabited dwelling in an adjoining city or town, should be repealed, inasmuch as it has been demonstrated that this statute works to the detriment of the public health. This committee, after exhaustive research, has reached the conclusion that one institution, preferably that at Westfield, should be set apart for women and children in order that a beginning, at least, may be made in the proper separation of the sexes.

"In accord with the recommendation of the attorney general, the statutes authorizing the courts to order the segregation of persons afflicted with contagious diseases should be clarified."

This report is signed by all of the nine members of the committee. One of the members also submits a minority report, in which he recommends the abolition of the present State Board of Health and its replacement by a commission appointed by the Governor, this commission to

be given full power to build and maintain local tuberculosis institutions at the full expense of the State or at the joint expense of the State and each respective community.

Obviously the recommendations of the majority report merit serious attention, which they will doubtless receive at the hands of the present General Court. Whatever legislation may result, should follow only after careful and extended discussion of the situation. That work of high efficiency has already been done in dealing with the tuberculosis problems of our State in the past, does not make it impossible that improved facilities and methods for the continuance and extension of that work may not be desirable in the future.

MEDICAL LEGISLATION. THE REPORTING OF OCCUPATION DISEASES.

ON Friday, Jan. 9, a hearing was held at the State House by the joint state board of labor and industries and industrial accidents, on the question whether it should adopt, as authorized by chapter 813 of the Acts of 1913, a regulation relative to the reporting of occupation diseases and injuries by physicians. The text of the proposed regulation is as follows:—

"Under authority of section 6 of chapter 813 of the Acts of 1913 the Joint State Board of Labor and Industries and Industrial Accidents hereby requires that every physician treating a patient whom he believes to be suffering from poisoning from lead, phosphorus, arsenic or mercury or their compounds, or wood alcohol, or from anthrax, or from compressed air illness, to report within 48 hours to the State Board of Labor and Industries, the information relating thereto called for by the reporting blanks issued by the said board. Every such physician is hereby requested to make reports on the said blanks to the State Board of Labor and Industries of any patient whom he treats that is suffering from any other ailment or disease which the physician believes to have been contracted as a result of the nature, circumstances or conditions of the patient's employment."

The reporting blanks referred to are devised for the uniform record of the examination of patients with industrial diseases or injuries. The purpose of this proposed regulation is obvious as a means of securing prompt and thorough report by physicians in attendance on such patients. It is a logical adjunct to the legislative policy of dealing with occupation diseases, and as such should be adopted and enforced.

MEDICAL NOTES.

PUBLIC MEETING ON CANCER AT PITTSBURGH.—Cancer and the public efforts to reduce its ravages were discussed from many points of view on Feb. 3 at Pittsburgh, Pa., at a special open meeting in Soldiers' Memorial Hall. This gathering was arranged by the Twentieth Century Club and the Pittsburgh Academy of Medicine, with the coöperation of the American Society for the Control of Cancer as one of a series of public meetings in various parts of the country, at which representatives of the national organization will endeavor to spread the message of hope for the cure of cancer which still is to be sought only in early recognition and competent surgical treatment.

Hon. James R. Macfarlane presided and Mr. Frederick L. Hoffman, statistician of the Prudential Life Insurance Company of America made the opening address.

The Rt. Rev. Regis Canevin, Bishop of the diocese of Pittsburgh, defined the first duty of a layman to the science of medicine to give those who are engaged in it whatever encouragement he can whenever he can.

FOUR BRITISH CENTENARIANS.—Miss Ann Hutchings, who died recently at Wellington, England, is said to have been born in 1811. Mrs. Harriet Light, who died on Jan. 10, at Weston-super-Mare, was born on Sept. 13, 1813. Mrs. Cooper, who died in the same city on Jan. 7, was also born in 1813. Mrs. Clarke, of Rushden, who died recently, is supposed to have been born in 1812.

LORD STRATHCONA'S MEDICAL BEQUESTS.—The will of the late Baron Strathcona and Mount Royal, who died on Jan. 21 in London, contains bequests of $500,000 to the Royal Victoria Hospital, at Montreal, and $90,000 to hospitals in the British Isles.

SMALLPOX NEAR BALTIMORE.—Report from Maryland states that on Jan. 29, 23 cases of smallpox were reported in the vicinity of Baltimore, 21 of them being at Warren, a mill village 15 miles to the north.

SMALLPOX IN PENNSYLVANIA.—Report from Erie, Pa., states that on Feb. 1 there were 90 cases of smallpox in North East, a neighboring town in Erie County, with a population of 2000. All the inhabitants are now being vaccinated.

THE MAGEE HOSPITAL.—It is announced that work has been begun on the erection of the Magee Maternity Hospital at Pittsburgh, Pa., which is expected to cost $800,000, and which will be affiliated with the University of Pittsburgh Medical School.

BOSTON AND NEW ENGLAND.

INFECTIOUS DISEASES.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Feb. 3, 1914: Diphtheria, 61, of which 1 was non-resident; scarlatina, 95, of which 3 were non-resident; typhoid fever, 20; measles, 52; tuberculosis, 47, of which 2 were non-resident.

The death-rate of the reported deaths for the week was 19.45. The deaths of 19 "Arcadia fire" victims are included in this rate.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.—The annual meeting of the Massachusetts Association of Boards of Health was held in Boston on Jan. 29. The principal address was on "Child Hygiene," by Dr. William J. Gallivan, who pointed out that the infant mortality in this city has declined from 126 per 1000 births in 1911, to 117 in 1912, and only 107 in 1913. The following officers were elected for the ensuing year: President, Dr. James C. Coffey, of Worcester; vice-presidents, Dr. Milton J. Rosenau, of Brookline, Mass., and Dr. Charles V. Chapin, of Providence, R. I.; treasurer, Dr. Francis C. Curtis, of Newton; and secretary, Dr. Francis H. Slack, of Boston.

A NEW PREGNANCY CLINIC.—On Thursday of last week, Feb. 5, the Boston Milk and Baby Hygiene Association opened at the Peter Bent Brigham Hospital a pregnancy clinic, under charge of Dr. Arthur B. Emmons, 2nd, of this city. The nursing service will be supplied by the Boston Instructive District Nursing Association.

TWO LIVING CENTENARIANS.—Mrs. E. P. MacGray, of South Scituate, R. I., who is said to have been born on Feb. 2, 1811, in Barnstable, Mass., celebrated last week her supposed 103rd anniversary. Her health is excellent.

Mrs. Margaret E. Jordan, of Malden, Mass., who is said to have been born in February, 1814, celebrated recently her supposed centennial anniversary. She walks outdoors every day, and is in excellent general health.

SMALLPOX IN PORTLAND.—Report from Portland, Me., states that on Feb. 4, there were in that city 15 cases of smallpox. All the local schools have been indefinitely closed, and the public is advised not to frequent places of assembly and amusement.

ARMY NURSES' MEMORIAL.—On Thursday, Feb. 12, a memorial is to be dedicated in the Massachusetts State House to the army nurses of the Civil War.

"The memorial is a statue representing a wounded soldier reposing in the arms of an army nurse. The inscription is: "To the army nurses from 1861 to 1865. Angels of mercy and life amid scenes of conflict and death. A tribute of honor and gratitude from the Massachusetts Department, Daughters of Veterans, 1914."

HOSPITAL BEQUESTS.—The will of the late Mary A. Towars, of Brookline, Mass., which was filed on Jan. 30 in the Norfolk Registry of Probate, contains bequests of $200 each to the Boston Nursery for Blind Babies and the Boston Floating Hospital.

NEW YORK.

ENDOWMENT OF MEDICAL EDUCATION.—The annual dinner of the faculty and directors of the New York Post-Graduate Medical School and Hospital was held on Jan. 28. The president, Dr. J. F. McKernon, was toastmaster, and among the speakers was Prof. W. H. Welch of Johns Hopkins University. In his remarks the latter expressed his regret at the lack of endowment of medical colleges. "I would be the last," he said, "to say a word against institutions like the Rockefeller Institute and the Carnegie Institute at Washington, which have fully justified their existence by their contributions to knowledge. But there is not a similar acknowledgment of the need of endowing medical education, and it is a narrow course to endow research work and not to endow medical education, in which research work is rooted."

REPORT OF STONY WOLD SANATORIUM.—The thirteenth annual meeting of the Stony Wold Sanatorium Corporation was held on Jan. 28, when the principal address was made by George McAneny, president of the board of aldermen. The reports of the institution, which is in the Adirondacks and cares for women and children with incipient tuberculosis, showed that during the past year 230 patients had been treated, and

that 146 patients had been discharged as cured. Of all who have ever been discharged from the sanatorium, it was stated, between 60% and 65% are working and apparently in good health.

MEETING OF ASSOCIATED PHYSICIANS OF LONG ISLAND.—The sixteenth annual meeting of the Associated Physicians of Long Island was held at the library building of the Medical Society of Kings, Brooklyn, on Saturday afternoon, Jan. 31, and at the scientific session a paper on "Practical Points in the Interpretation and Management of Low Blood Pressure," was read by Dr. E. E. Cornwall of Brooklyn, and one on "Original Uses of the Bone Graft; with a Report of 325 Cases," by Dr. F. H. Albee of Manhattan. In the evening a dinner was held at the Hamilton Club, the principal address at which was made by Dr. William Francis Campbell, of Brooklyn, president of the New York State Medical Society.

A MEDICAL POSTMASTER.—Dr. William H. Murray has been appointed postmaster of the city of Albany by President Wilson, Dr. Murray was graduated from the Albany Medical College in 1869, and is still in active practice.

NURSING IN MUNICIPAL HOSPITALS.—The hospital investigating committee of the Board of Estimate and Apportionment, of which George McAneny, president of the Board of Aldermen, is chairman, has submitted two more sections of its report, both in regard to the nursing in the municipal hospitals. One of the recommendations is that a schedule should be established calling for the employment of one nurse for each four beds in the smaller hospitals having frequent admissions, and of about one for each five beds in the larger hospitals, which care for the more prolonged cases. The present conditions are described as unsatisfactory, and it is stated that, while nursing associations are endeavoring to improve conditions and to meet the demand for nursing by educating a supply of well-trained, competent nurses, the supply is by no means adequate to the needs, and it is an open question whether or not some form of training should be offered which would attract and equip a larger number of women for the nursing field; a form of training which would not encroach upon the field of the highly trained nurse.

VALUE OF STATISTICAL MATERIAL.—The criticism has been made that the value of much of the statistical material published by the City Health Department in its weekly and monthly bulletins is greatly impaired because its form is such as to render comparison with other years difficult, or even impossible. This criticism does not apply, however, to the tables prepared by the Bureau of Records, which have long been published in their present form and which are, therefore, readily available for purposes of comparative study. Consequently, the department has, in its *Weekly Bulletin*, begun the publication, in the form of fixed tables, of certain statistical material relating to its work, and hopes thereby to render the bulletins more serviceable to students of public health. The first installment of this relates to typhoid fever in the last quarter of 1913, and gives the figures concerning the following points: Cases reported (true cases—no cases); deaths; blood sent to laboratory (positive—negative); treated at home; treated at hospital; contact; probably out-of-town infection; additional cases with out-of-town history; total with out-of-town history; number of persons exposed to a case in family; immunization refused; immunization accepted.

APPOINTMENTS AT COLUMBIA UNIVERSITY.—At a meeting of the trustees of Columbia University, held on Feb. 2, it was announced that Dr. George E. Brewer, professor of clinical surgery, had been appointed professor of surgery, in the place of Dr. Joseph A. Blake, resigned. This professorship carries with it the important position of head of the surgical division of the Presbyterian Hospital. Dr. Walter B. James, professor of clinical medicine, was, at his own request, retired from the faculty of the medical department. He will still, however, retain his professorship, and continue to direct certain lines of research work. Among the gifts announced at the meeting was one of $2,500 from Dr. John A. Fordyce, for special equipment at the Vanderbilt Clinic.

CRIMINAL NEGLIGENCE.—As the result of a coroner's inquest in the Bronx, John C. Wessels, Jr., and a Christian Science healer, Mrs. J. D. McClintock, were, on Feb. 2, held in $1,000 bail each, on a charge of criminal negligence. A child of Wessels,' 20 months old, died from diphtheria on Jan. 17, under the attendance of the healer, and at the inquest Dr. S. D. Hub-

bard of the Department of Health testified that after the child's death the father refused to permit the administration of antitoxin either to himself or to his other children. He also reported that throughout the baby's illenss a sister, twelve years of age, was allowed to attend the public school where she was a pupil.

ANOTHER CASE OF TYPHUS.—On Jan. 28 a case of typhus fever was discovered by health officers of this port aboard the French steamer *Rochambeau*, which arrived on Jan. 26 from Havre. The patient and 102 of his immigrant companions were placed in quarantine at the Hoffmann Island Hospital. This was the sixth case of typhus fever detected at this port during the month of January.

HARVEY LECTURE.—The eighth of the current series of lectures before the Harvey Society will be delivered on Saturday evening of this week, Feb. 14, at the New York Academy of Medicine, by Prof. J. J. R. Macleod, of Western Reserve University, on "Recent Work on the Physiological Pathology of Glycosuria.

THE HOME HOSPITAL EXPERIMENT.—The New York Association for Improving the Condition of the Poor has just issued a publication (No. 78) entitled "The Home Hospital Experiment," being a statement of the "methods, results, and comparative cost during the first year (1912-13) in the combined home and hospital treatment of families made dependent by tuberculosis.

Current Literature

THE ARCHIVES OF INTERNAL MEDICINE.

DECEMBER, 1913.

1. GAY, F. P., AND CLAYPOLE, E. J. *Studies in Typhoid Immunization. I. The "Typhoid-Carrier" State in Rabbits as a Method of Determining the Comparative Immunizing Value of Preparations of the Typhoid Bacillus. II. Agglutinability of Blood and Agar Strains of the Typhoid Bacillus.*
2. *CHACE, A. F., AND MYERS, V. C. *The Examination for Diagnostic Purposes of the Enzyme Activity of Duodenal Contents.*
3. *WHIPPLE, G. H. *Hemorrhagic Disease. Antithrombin and Prothrombin Factors.*
4. *KOLMER, J. A., LANBAUGH, E. E., CASSELMAN, A. J., AND WILLIAMS, W. W. *Practical Studies on the So-Called Syphilis "Antigens," with Special Reference to Cholesterinized Extracts.*
5. STEWART, G. N. *Studies on the Circulation in Man. IX. The Blood-Flow in the Hands (and Feet) in Cases in Which Obvious Anatomical Differences Exist.*
6. *VOGEL, K. M. *Blood Transfusion and Regeneration in Pernicious Anemia.*
7. FREIBURG, L. A. *The Pathogenesis of the Contracted Kidney.*
8. *MCLESTER, J. S. *Studies on Uric Acid of Blood and Urine, with Special Reference to the Influence of Atophan.*
9. ROSS, E. L. *Some Forms of Urinary Nitrogen Affected by the Administration of Desiccated Thyroid to Dementia Precox Patients.*
10. *BARACH, J. H. *Morphology of the Blood in Epidemic Parotitis.*
11. *JANEWAY, T. C. *A Clinical Study of Hypertensive Cardiovascular Disease.*

2. Chace and Myers report on a study of the enzyme activity of duodenal juice obtained with the Einhorn tube. They find that the activity of the amylolytic, lipolytic and proteolytic enzymes of this juice is subject to considerable variation under normal conditions. It is not influenced by the acidity of the gastric juice. In a case of chronic pancreatitis, the amylolytic and proteolytic activity was entirely negative and the lipolytic activity comparatively weak. The absence of pancreatic enzymes from the duodenal juice would therefore appear to be positive evidence of either pancreatitis or non-potency of the pancreatic ducts.

3. Whipple studied the blood in a series of cases of hemorrhagic disease of various forms. He is more convinced than ever by this further study that antithrombin is a factor of importance in cases of bleeding. He finds that the antithrombin-prothrombin balance in the blood is in delicate equilibrium, but under normal conditions there are strong factors which can preserve this balance. Under disease conditions this balance may be temporarily or permanently upset. The prothrombin factor is rarely involved, but may drop to a low level and cause hemorrhagic symptoms. The antithrombin factor is frequently involved, the amount of excess determining the degree of hemorrhage. Antithrombin may fall below normal and cause a tendency to vascular thrombosis. It is highly probable that under certain conditions liver injury or disease may be associated with an excess of antithrombin in the blood capable of giving hemorrhagic symptoms. True hemorrhagic disease is rarely associated with obstructive icterus. In these rare cases we may presuppose some liver disease and an upset in the antithrombin-prothrombin balance. Certain substances in the blood will cause an overproduction of antithrombin, due probably in great part to the stimulation of the liver. This is the cause of hemorrhagic symptoms in septicemia, endocarditis, pneumonia and miliary tuberculosis. In disease of the blood-forming organs, the blood-forming tissues are probably not directly concerned in the excessive antithrombin production, as this element is much in excess in cases of anemia with complete marrow aplasia. Treatment of hemorrhagic disease should follow a careful analysis of the blood. In cases of low prothrombin serum rich in this element is indicated, intravenously or, even better, by direct transfusion. Treatment of antithrombin cases is very difficult. At present direct transfusion seems to offer the greatest hope of permanent benefit.

4. Kolmer, Lanbaugh, Casselman and Williams report on studies of syphilis antigens. In the order of efficiency in practical serum diagnosis of syphilis, they arrange the various extracts in the following order: (1) cholesterinized alcoholic extracts of human, pig and beef heart; (2) plain alcoholic extracts of known syphilitic liver; (3) acetone-insoluble lipoids (Noguchi), (4) plain alcoholic extracts of human, pig and beef heart; (5) acetone extract of syphilitic liver; (6) plain alcoholic extract of normal liver. The best results are obtained by using several

antigens with each serum, including plain and cholesterinized extracts.

6. Vogel and McCurdy discuss the value of blood transfusion in pernicious anemia and report six cases. They believe that transfusion of physiologically unaltered blood is one of the most promising forms of palliative treatment available in this disease. The measure should not be postponed until the patient is in a desperate condition. Large transfusions may be injurious and it is probable that more benefit is to be expected from small doses introduced at intervals to be determined by the progress of the patient. The enumeration of the reticulated cells by the method of vital staining is a reliable means of watching the hemopoietic activity of the bone marrow and the effects of various therapeutic measures upon it.

8. McLester studied the effect of atophan on the uric acid of the blood and the urine. He finds that the amount of endogenous uric acid in the blood of different individuals varies widely, but for a single individual the figure is a constant one. Atophan increases renal activity and exerts a selective stimulating influence on uric acid excretion, while it simultaneously reduces the uric acid of the blood. Its influence on uric acid metabolism seems to be limited to its power of transferring uric acid from the blood to the urine.

10. Barach studied the blood in epidemic parotitis. He finds that in fully developed uncomplicated cases of this disease there is a marked leucopenia with the polynuclears relatively and absolutely decreased and the lymphocytes relatively and absolutely increased. Eosinophiles are very scarce.

11. Janeway gives the results of an 18-months clinical study of cardiovascular disease with hypertension, his object being to throw light on prognosis in these cases. He finds that the most prominent symptoms associated with high blood pressure are circulatory rather than renal. The disease underlying high arterial pressure is predominantly a disease of the circulatory system, whether primary or secondary to preceding inflammatory nephritis. Death in these cases (in private practice) occurs most often by gradual cardiac insufficiency, next often with uremic symptoms, by apoplexy, by complicating acute infection, by angina pectoris, from unrelated causes, with acute pulmonary edema, with cachexia.

The early symptoms have an important prognostic significance. The early occurrence of symptoms of myocardial weakness, especially dyspnea, indicates a more than 50% probability of eventual death by cardiac insufficiency. The early occurrence of anginoid pain on exertion does not indicate a probability of death in an anginal paroxysm for more than one-third of the patients, but does indicate a probable cardiac death of some type. Polyuria, particularly if nocturnal, indicates the probability of a uremic death for more than 50% of the patients. Headache indicates the probability of a uremic death for more than 50% of the patients, and death from apoplexy for a considerable number of the remainder. Progressive loss of weight is a bad prognostic sign. Systolic blood pressure persistently above 200 mm. indicates a greater probability of death by uremia or apoplexy. The average duration of life in the group of patients studied was four years for the men and five for the women. One-fourth of the whole number, however, lived more than ten years from the appearance of the first symptom. [L. D. C.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 49. DECEMBER 8, 1913.

1. SATTLER. *The Present Status of the Treatment of Glaucoma.*
2. FEJÉR. *The Reciprocal Pathological Conditions of the Antra and Cells Near the Eye and Nose, from the Ophthalmologist's Point of View.*
3. ROSENBERG. *Hemorrhagic Pachymeningitis in Childhood.*
4. HOFBAUER. *The Circulatory Function of the Intrathoracic Negative Pressure.*
5. *OCZESALSKI. *A Case of Fecal Vomiting in Gastric Crisis.*
6. KNOCH. *A Case of Severe Anemia with Localizing Cerebral Symptoms (Aphasia and Hemianopsia.)*
7. FRAENKEL. *A Contribution to the Serum Diagnosis of Pregnancy.*
8. GYENES AND STERNBERG. *A New and Rapid Method for the Detection of the Spirochaeta Pallida in the Tissues.*
9. HEINRICHSDORFF. *Pathological Lesions of the Liver Resulting from Salvarsan—A Further Contribution.*
10. FISCHER. *Occurrence of the Mouse Favus in Mankind.*
11. GRUNDMANN. *Experiences with the Use of Bile as a Culture-Medium for the Diphtheria Bacillus.*
12. CRAMER. *A New Drug for the Treatment of Whooping Cough ("Droserin").*
13. KAYSER. *The Therapeutic Importance of Calcium.*

5. The author has been able to find in the literature reports of fecal vomiting in several conditions besides obstruction,—typhoid, scarlet fever, spasm of the colon, and hysteria; but no record of such occurring in tabes, as in his case. The patient was a man of 53, with a history of luetic infection, and presenting many of the symptoms and most of the signs of tabes. He had, at irregular intervals, extremely severe gastric crises, during several of which he had perfectly typical fecal vomitus. The author could rule out satisfactorily the presence of a possible fistula between the stomach and either large or small intestine, and presents this case merely as an interesting exception to the rule of stercoraceous vomiting being pathognomonic of obstruction—whether mechanical or paralytic. [R. H. M.]

No. 50. DECEMBER 15, 1913.

1. SONNENBERG. *Appendicitis, Formerly and Now.*
2. OPPENHEIM AND KRAUSE. *Operative Results in Tumors in the Region of the Optic Thalamus and Corpora Quadrigemina.*
3. SATTLER. *The Present Status of the Treatment of Glaucoma. (Concluded.)*
4. FORNET. *Concerning the Cause of Small-pox.*
5. ECKERT. *The Rôle of Contact-infection in the Epidemiology of Cholera.*
6. FRIEDBERGER AND SCHIFF. *Further Contributions on Heterogenetic Antibodies.*
7. LANGGARD. *The Relation Between Chemical Constitutions and Physiologic Actions.*
8. *BLUMENTHAL. *The Present Status of the Treatment of Malignant Tumors (Vaccine Therapy).*

8. The author, reviewing the work of himself and others in treating patients and experimental animals with extracts of malignant growths, either the original tumor or a similar one from another body, feels that certain cases have been benefited in this way. He considers that this form of vaccination should be tried out more thoroughly; that although no solution of the problem is yet in sight, the few good results already obtained warrant further exhaustive investigation of the subject. [R. H. M.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

DECEMBER 16, 1913.

1. *GRAFE, E. *The Effect of a Continued Diet Rich in Carbohydrates and Without Albumen upon the Metabolism of Man and Animals.*

2. MANDELBAUM. *Changes in the Cerebrospinal Fluid in Tubercular Meningitis.*
3. *PFANNMÜLLER. *Influence upon Nitrogen Metabolism in Infectious Fevers by Increased Carbohydrate Intake.*
4. BELTZ, L. *Leukemia, with Special Regard to the Acute Type.*
5. BURNS, O. *Experimental Study of the Phenomena of Cardiac Weakness after Over-exertion.*

1. Grafe calls attention to the fact that in most of the work in regard to additions of excesses of sugar to the diet with subsequent increase in stored glycogen and fat and increase in weight there is also an increase in nitrogen as well as carbohydrate. He mentions the peculiar findings of certain men that carbodrate diet alone without nitrogen does not cause increase in weight, but usually a diminution. This paper is a report on the study of a series of men and animals in regard to their weight, nitrogen metabolism, water balance, and heat production. These subjects have been fed on a diet much above the caloric needs with the increase composed of carbohydrates without albumen. He found that they lost in weight in practically all instances. The loss of weight was due to a loss in water balance at the start and after a week or so to a marked increase in heat production. This increased oxydation was most marked in the swine, less so in the dogs, and least in man. His article is accompanied by a long series of tables in which the results are placed in detail.

3. Pfanmüller has reported the results of some studies on nitrogen excretion which were undertaken to see whether in febrile conditions, as in health, a saving of nitrogen excretion could be produced by the addition of a rich carbohydrate diet. His studies show that in fever caused by the pus-forming bacteria a saving of from 15 to 40% of nitrogen destruction can be produced by this means, as contrasted with the 10% saved by the same method in health.
[C. F., JR.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 44. OCTOBER 30, 1913.

1. BASTEL, T. *The Significance of Constitutional Conditions.*
2. BRINNER, A. *The Advisability of Gastroenterostomy and Resection in Ulcus Ventriculi Remote from the Pylorus.*
3. *NOVAK, T., AND PORGES, O. *The Acidity of the Blood in Osteomalacia.*
4. JELLINEK, S. *The Significance of the Nature and Intensity of Strong Electric Currents in Relation to Their Reaction on the Animal Body.*
5. v. MASSARIE, AND KRONENFELS, G. *The Treatment of Frostbites in Time of War.*
6. PAUL, E. *The Extraction of Foreign Bodies from the Air-Passages.*
7. KVOKIEWICZ, A. *The Benzol Therapy of Leukemia.*

3. The authors draw conclusions as follows: There is a relation between acidosis and osteomalacia, but the acidosis seems an accompanying rather than an etiological factor. The carbon dioxide tensions of the alveolar air may be used as an indicator of the acidity of the blood. In normal pregnancy there is occasionally as low a CO_2 tension, *i.e.* relatively high acidity of the blood as in osteomalacia. The remainder of the article takes up the well-known theory of the "perverted ovarian secretion," cause of osteomalacia and its cure by castration. [F. S. K.]

No. 45. NOVEMBER 6, 1913.

1. HESS, L., AND MÜLLER, H. *The Ultimate Fate of Destroyed Red Blood Cells.*
2. GUTHILEN, F. *Changes in Skin Reaction.*
3. SORGO, J. *The Influence of Serums on the Cutaneous and Intracutaneous Tuberculin Reaction.*
4. *KEITLER, H. *Radium Treatment of Carcinoma Uteri.*
5. WERNER, P., AND WINIWARTER, A. *The Abderhalden Pregnancy Reaction.*
6. SCHLEMMER, F. *Peroral Intubation in Operations in the Region of Upper Air and Food Passages with the Kuhn Apparatus.*
7. KIRSCH, O. *The Remission Phenomena of Scarlatina Exanthem.*

4. The treatment of carcinoma uteri with radium must not be considered a substitute for radical operation. It has, however, three important phases of usefulness. (1) in making operable some previously inoperable cases; (2) palliation in inoperable cases; (3) prevention of recurrence in postoperative cases.
[F. S. K.]

No. 46. NOVEMBER 13, 1913.

1. KAHANE, H. *Psychic Depressions.*
2. RIEDL, H. *Extirpation of the Knee-joint.*
3. GROSZ, S., AND VOLK, R. *Syphilis Therapy and the Wassermann Reaction.*
4. KERL, W. *Abortive Treatment of Syphilis.*
5. *SACHS, O. *Early Treatment of Syphilis.*
6. SPITZER, T. *Case Histories of Syphilis.*
7. SCHWARZ, G. *The Therapy of Secondary Rays.*

5. The treatment of syphilis, the author concludes, offers better prospects the earlier it is begun. Such treatment consists in extirpation or cauterization of the primary sore, followed by combined mercury and salvarsan treatment continued under a sufficient period under control of the Wassermann reaction. According to the observations of the author, 101 cases over a period of one to six years, the combined treatment gives by far the best results as compared either with mercury or salvarsan alone. [F. S. K.]

No. 47. NOVEMBER 20, 1913.

1. OPPENHEIM, M. *The Etiology of Idiopathic Atropy of the Skin, Dermitits Atropicans.*
2. HECHT, A., AND NADEL, V. *Experimental Investigation on the Action of Hypophysis Extracts by Means of Electro-cardiography.*
3. FINSTERER, H. *The Therapy of Large Hernia of the Sigmoid Flexure.*
4. NEUMANN, F. *Radium Treatment of Cicatricial Stenosis of the Esophagus.*
5. TENZER, S. *Tonsilectomy with a Consideration of Results on Tonsilectomized Children.*
6. ROCHELT, E. *Permanent Artificial Pneumothorax.*
7. *NEUGEBAUER, O. *Ebaga Preparations and Their Use in Dermatology.*

7. Ebaga preparations are prepared with reference to the incorporated medication as combinations of alkalies of varying concentration with steric and palmetic acid and the addition of especially prepared mineral oils. The advantages are: (1) agreeableness; (2) does away with olly skin; (3) more energetic action on the skin. ([F. S. K.]

No. 48. NOVEMBER 27, 1913.

1. BRENNER, A. *The Diaphragmatic Rub; an Early Symptom of Gastric Perforation.*
2. *GIEL, W., AND PORGES, O. *Dermatitis and Anacidity.*
3. CANTEIN, C. *The Cholesterin Treatment of a Case of Anemia Splenica in a Child.*
4. v. SARBO, A. *The Symptomatology of Intrathoracic Struma.*
5. GOLDBERG, J., AND OCZESALKI, K. *A Case of Lyssa with Meningitic Symptoms.*
6. WEINLANDER, G. *Apoplexy with Lethal Result after Lumbo-Puncture in Uremia.*
7. BRAZA, H. *Eleven Cases of Periostitis Typhosa.*

2. The authors conclude as follows: It is a well-known fact that there exists a relation between dermatosis and improper metabolism. The demonstration of specific toxins has, however, been lacking. The authors cite three cases of hypoacidity—no free HCl in the stomach, and one case of total anacidity with obstinate itching dermatoses, that resisted all other treatment but readily disappeared under treatment with HCl by mouth. [F. S. K.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 102. PART 4.

30. STIEDA, A. *In memory of Fritz Gustav von Bramann.*
31. STIEDA, A. *Observations on Brain Surgery.*
32. STIEDA, A. *Esophageal Plastics.*
33. LICHTENSTEIN, R. *Experiences with Rosenbach's Tuberculin in the Treatment of Surgical Tuberculosis.*
34. ZANDER, P. *Critical Review of the Cases of Appendicitis of the Last Three Years in the Surgical University Clinic at Halle, A. S.*
35. NENTWIG, M. *Experiences with Pantopon-Scopolamin Narcosis.*
36. *VEIT, K. E. *Potency of the Omphalo-mesenteric Duct (Meckel's Diverticulum).*
37. VEIT, K. E. *The Etiology of Caput Obstipum (Torticollis Due to Trauma at Birth.)*
38. BECKER, J. *Tuberculosis of the Bursae about the Hip.*
39. BECKER, J. *Intussusception in Children.*
40. BOEHMKE, E. *Traumatic Dislocation of the Hip in Children.*
41. LOEPP, W. H. *Luxatio Femoris Centralis Traumatica.*

36. Veit's article reviews the work which has been done on Meckel's diverticulum, and adds two cases. Persistence of the omphalo-mesenteric duct may cause intestinal obstruction by mechanical means or may be the seat of an acute inflammatory condition. Normally the duct disappears in the second month of intrauterine life, but when it persists may be found at birth as a blind sac ending free within the abdomen, as a sac connected by a band with the interior abdominal wall, as a channel between the intestine and the navel, or even as an open canal extending into the umbilical cord. In some cases in which the canal itself is obliterated, "rests" of mucous membrane occur at the umbilicus, where they form granulomata, or along the tract of the obliterated duct, where they form cysts. Veit's cases were both in young infants. In the first, a fecal fistula appeared at the navel, and through this fistula the mucosa of the diverticulum prolapsed. At operation the diverticulum was removed, but a fecal fistula persisted and the child died a few weeks later. In the second case, there was also a fecal fistula at the umbilicus. Through this the diverticulum was extruded, and was followed by several cm. of true intestinal wall. This became strangulated and the child died without being operated.

Veit advises operation early in patent omphalo-mesenteric duct cases, as later the child becomes weakened and is a poorer risk. There is also the chance that the gut may become strangulated, requiring resection, which is, of course, a much more serious operation. In 22 operations for patent Meckel's diverticulum, Straeter had a mortality of only 10%. [G. G. S.]

DIE THERAPIE DER GEGENWART.

DECEMBER, 1913.

1. STRAUSS, H. *Progress in the Treatment of Albuminuria and Nephritis.*
2. *BORCHARDT, L. *Treatment of Asthma with Pituitary Extracts.*
3. BRÜCKNER, G. *Alendrin.*
4. DETHLEFFSEN. *Anaphylactic Manifestations after Fibrolysin.*
5. ABEL, S. *The Iodine Treatment of the Throat for the Removal of Diphtheria Bacilli.*
6. ROEDER, H. *The Treatment of Epilepsy in Childhood.*
7. KATZENSTEIN, M. *Advances in Surgery.*
8. PROSKANER, A. *Sudden Death after Local Anesthesia with Alypin in a Case of Unilateral Suprarenal Tuberculosis.*
9. KLEMPERER, F. *Dr. Friedrich Franz Friedmann's Remedy in the Treatment of Tuberculosis and Scrofula.*

2. Borchardt reports ten cases of asthma in which he used pituglandol subcutaneously in doses of 1 c.c. He finds this remedy given in this way a reliable means of checking the asthma attack and preventing its recurrence. [L. D. C.]

Miscellany.

A FRENCH FEMALE XIPHOPAGUS.

IN a recent issue of the JOURNAL we noted the case of a new pair of so-called Siamese twins, born in Paris on Nov. 27, 1913. The case was recently presented by Dr. LeFilliâtre before the French Academy of Medicine, and the following description of it was published in a recent isue of the *British Medical Journal*.

"The two girls, who are in good health, are united at the base of the sternum by a fleshy cylinder which appears to enclose above a sort of semi-rigid bridge and below two parallel fibrous tracts. Radioscopic examination, after ingestion of bismuth by one of the children, shows that the digestive canals are independent of one another, although in the fleshy part there is a canal which brings the two abdominal cavities into communication, by which the alimentary tube passes at times, when contractions occur, out of the abdomen of one child, causing a hernia into the other child, and even reaching to its liver. It cannot be said that any union between the two livers, such as has been found previously in such monsters, exists. A special interest attaches to this case, inasmuch as all those hitherto described were anterior to the discovery of radioscopy of the alimentary canal by the use of bismuth. The operation to separate the children has not yet been performed (though it does not seem to present any serious difficulty) because one of the children is affected with umbilical suppuration, no doubt extending to the umbilical vein. This constitutes a condition of infection unfavorable to present surgical intervention. Meanwhile, several examinations have been made, which have led to curious results. Blood examinations show a great difference in the cytologic condition of the two children; the erythrocyte and leucocyte counts, the pulse beats, even the temperature records, differ considerably in the two bodies, showing that the circulations are independent, at least in their

larger passages. The child affected with umbilical suppuration shows a greatly increased leucocytosis over the other, which is easily explainable; but this infection reacts only on herself, and in no way affects the general condition of her fellow. One child may show some slight febrile movement as well as diarrhea, without the other one suffering any indisposition. There is only one symptom which always extends from one child to the other—insomnia."

RELATIONSHIP OF TYPHOID AND TUBERCULOSIS.

Seven years ago Reincke of Hamburg and Mills of the United States first called attention to the fact that wherever the typhoid incidence of a community is reduced by improvement of its water supply, the incidence of other diseases, notably tuberculosis, is also simultaneously reduced. Hazen, Sedgwick and MacNutt made further observations and contributions on this subject, but left undecided the cause of this interesting phenomenon.

In the January issue of *American Medicine*, Woodruff publishes detailed data aiming to prove a relationship between tuberculosis and typhoid; and in the issue of *Science* for Jan. 30, he published a preliminary note summarizing as follows the theory of his explanation.

"It has been found that tuberculosis follows typhoid fever far more frequently than physicians have suspected, and moreover, the tuberculosis mortality curve of a nation is almost always parallel to that of typhoid fever. Cities do not show such a close agreement as the country as a whole, because consumptives quite commonly leave the city to die elsewhere. As far as the very defective statistics permit a conclusion, it is to the effect that conumptives have had much more typhoid fever than the rest of the population. We have long known of the serious after-effects of typhoid fever, but only recently have a few physicians been calling attention to the far-reaching nature of these sequelae. Tuberculosis is only one of these results. That is, by reducing typhoid fever in any way whatever we save far more from death by numerous other conditions due to the lessened resistance caused by the typhoid infection. The purification of a water supply is then only one of the numerous ways of reducing tuberculosis.

"The explanation of the phenomenon is evident. By personal inquiries of physicians in the United States, Germany, Switzerland, France and Great Britain, I find that the following facts seem proved to the minds of those who by special study are competent to form an opinion. Babies are born free of tuberculosis, but begin to acquire it as soon as they can crawl around, pick up the bacilli with dust and dirt, and immediately convey them to the mouth, after the manner of all babies. These germs are weakened or attenuated by sunlight, drying, etc., and are not able to spread actively, though they establish themselves. Those which are taken in by the phagocytes have the same effect as vaccination and cause the production of antibodies, which make us all more or less immune to infection by virulent bacilli. If a baby is infected by fresh virulent bacilli from a nurse, before its immunity is produced, it dies of rapid disseminated tuberculosis, but an adult is not harmed by the virulent bacilli he takes in. Indeed, there is no incontrovertible evidence that any adult ever acquires tuberculosis. If one develops active tuberculosis, it is not a new infection, but an activation of latent lesions he has been carrying since childhood. Something has happened to him which has caused a temporary lessening of his antibodies and allowed the latent tuberculosis to spread—and nothing is more potent in doing this than the infections like measles, whooping cough and typhoid fever. Without these activating causes a man may lose immunity very slowly by improper food, mental and physical exhaustion, living in badly ventilated rooms, lack of outdoor exercise and a thousand other ways of lowering general health, but if one in such a condition does acquire another infection, like pneumonia, typhoid fever or influenza, his chances of becoming actively tubercular later are very large. Post-mortems of children almost always reveal tubercle, no matter what the disease was which caused death. Post-mortems of adults always show healed lesions, proving that at some time in our lives each of us lost resistance sufficiently to allow the lesions to become active, though we were later cured by a re-establishment of the immunity. One-eighth or one-tenth of us are unable to re-establish it and perish from tuberculosis. These facts are bound to modify the anti-tuberculosis crusade most profoundly.

"Savages, living an outdoor isolated life, have no chance to encounter tubercle bacilli and consequently do not become immune. When they do come in contact with a case they run a rapidly fatal course—generally if not always disseminated or miliary. That is, tuberculosis did not become a human affliction until long after we began to cluster together in confined shelters—possibly not until after we began to construct huts, 'dugouts,' and houses."

NOTICE.

Commonwealth of Massachusetts.—A conference in Modern Developments in Mental Nursing will be held in the Assembly Room at the Psychopathic Hospital, Monday 4–6 p. m., February 16, 1914.

1. Introductory remarks, Walter Channing, M.D., Chairman, Board of Trustees, Boston State Hospital.
2. "The Ideal Training of the Mental Nurse," Miss M. Adelaide Nutting, R.N., Director, Department of Health and Nursing, Teachers College, New York.
3. "The Nursing Component in the Recovery of Cases at the Psychopathic Hospital: An Analysis of

the First One Hundred Cases," E. E. Southard, M.D., Director, Psychopathic Hospital.

4. "First Impressions of the General Hospital Nurse on Visiting the Psychopathic Hospital," Miss Mary L. Gerrin, R.N., Acting Superintendent of Nurses, Psychopathic Hospital.

5. "A Comparison of the Drug Lists in General and Mental Hospitals," Donald Gregg, M.D., Assistant Physician, Out-Patient Service, Psychopathic Hospital.

6. "Constructive Mental Nursing," Herman M. Adler, Chief-of-Staff, Psychopathic Hospital.

7. "On the Incidence of Bedsores in Thirteen Hundred Mental Cases," Myrtelle M. Canavan, M.D., Pathologist, Boston State Hospital.

8. "The Question of Diet for the Insane in the Light of the Almost Constant Occurrence of Chronic Bright's Disease in Subjects Dying Insane," M. M. Canavan, M.D., and E. E. Southard, M.D.

9. "The Art of Companionship in Mental Nursing," Henry R. Stedman, M.D., Chairman, Board of Trustees, Taunton State Hospital.

10. "The Factor of Influencibility in Voluntary Admissions at the Psychopathic Hospital," George E. Eversole, M.D., Assistant Physician Psychopathic Hospital.

11. "The Problems of Mental Nursing from the Standpoint of the Medical Social Worker," Miss Ida M. Cannon, R.N., Head Worker, Department of Social Service, Massachusetts General Hospital.

12. "The Male Nurse," George T. Tuttle, M.D., Superintendent, McLean Hospital.

A brief recess will be taken at 5 o'clock for the convenience of early goers and late comers.

MASSACHUSETTS GENERAL HOSPITAL.

A surgical meeting open to the medical profession will be held ot 8.15 p. m., on Friday, Feb. 20, 1914, in the lower amphitheatre of the Out-Patient Department, Massachusetts General Hospital. Entrance on either Blossom or Fruit streets. The following papers will be presented:

" Cancer of the Uterus," by Dr. Farrar Cobb.

"A Study of Blood-Pressure in Hysterectomies and Other Radical Operations," by Dr. Harold Giddings.

An orthopedic meeting, open to the medical profession, will be held at 8.15 p. m., on Friday, Feb. 13, 1914, in the lower amphitheatre of the Out-Patient Department, Massachusetts General Hospital. Entrance on either Blossom or Fruit Streets. The following papers will be presented:

1. "Causes of Scolosis," by Dr. Z. B. Adams.

2. "Back Pain and Its Diagnosis," by Dr. Harry Platt.

3. "X-ray Diagnosis of Lesions of the Lumbar Spine and Sacro-iliac Joint," by Dr. C. Hermann Bucholz.

4. "Use of Plaster Backs in Post-operative Backache," by Dr. John McCartin.

SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT MEDICAL SOCIETY.—General meeting, John Ware Hall, Wednesday, Feb. 18, 1914, at 8.15 p. m.

"The Interrelationship of and the Lesions Produced by Various Streptococci, with Special Reference to Endocarditis," Dr. Edward C. Rosenow of Chicago. Discussion will be opened by Drs. M. J. Rosenau, S. B. Wolbach and W. H. Smith.

Light refreshments after the meeting.

ROGER I. LEE,
WILLIAM P. GRAVES,
CHANNING FROTHINGHAM, JR.
Committee on Medical and Social Meetings for the Boston Medical Library.

THE NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.

There will be a meeting of the Association on Tuesday, Feb. 17, at 8.15 p. m., at the Boston Medical Library.

Program.

1. Demonstration of instruments and specimens, and reports of cases.

2. Symposium. The genito-urinary tract as a factor in the production of chronic toxemias and joint lesions: (a) "Physiology and anatomy of the seminal vesicles in regard to the treatment of their lesions," Dr. William C. Quimby, Boston; (b) "Recent studies in the pathology of the seminal vesicles," Dr. J. D. Barney, Boston; (c) "Arthritis associated with genito-urinary lesions," Dr. E. G. Brackett, Boston; (d) "Indications for operation on the seminal vesicles, with suggestions as to the technic and the results so far obtained," Dr. J. Bentley Squier, New York; (e) "Operative treatment of inflammatory and tuberculous lesions of the seminal vesicles," Dr. Hugh H. Young, Baltimore. Discussions by Dr. C. F. Painter, Dr. Hugh Cabot, and others.

RICHARD F. O'NEIL, *Secretary.*

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, Feb. 17, 1914, in the amphitheater of the Administration Building of the Harvard Medical School, at 8.15 o'clock.

Program: Drs. S. B. Wolbach and R. S. Austin: "A New Filterable Spiral Organism from the Human Colon." (20 minutes.)

Dr. Carl TenBroeck: "The Antigenic Properties of Racemized Egg Albumin." (15 minutes.)

Dr. Theobald Smith: "Experimental Hematogenic Simulating Bronchogenic Tuberculosis." (30 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer.*
Harvard Medical School.

THE HARVEY SOCIETY.—The eighth lecture will be delivered on Saturday, Feb. 14, at 8.30 p. m., at the New York Academy of Medicine, 17 West 43d Street, by Prof. J. J. R. MacLeod, Western Reserve University. Subject: "Recent Work on the Physiological Pathology of Glycosuria."

RECENT DEATHS.

DR. VON BEVERHOUT THOMPSON, a highly esteemed practitioner of New York who retired from practice some years ago on account of ill health, died at his country residence near Poughkeepsie on January 19. He was a native of Maryland, and was graduated in the District of Columbia in 1867.

DR. WILLIAM H. HANFORD, who died recently in Brooklyn, was born at Saratoga Springs, N. Y., in 1825, the son of a physician. He graduated in 1846 from New York University Medical School. In 1853 he settled in the practise of his profession at Brooklyn. He was a member of the American Institute of Homeopathy, and of the New York State and Kings County Homeopathic Medical Societies. He is survived by his widow and by one son.

DR. THOMAS PEDDIE of New York died on January 20. He was graduated from Bellevue Hospital Medical College in 1875, and for twenty-three years served as a medical inspector in the City Health Department.

DR. GARFIELD H. ATWOOD, who died on Feb. 1 at Waterbury, Conn., was born in 1831. He received the degree of M.D., in 1844 from Yale. He immediately settled at Woodbury, and continued there in the practise of his profession until 1904. He is survived by his daughter.

Original Articles.

THE SIGNIFICANCE OF INTRA-ABDOMINAL "BANDS," "FOLDS" AND "VEILS."*

BY WILLIAM SEAMAN BAINBRIDGE, A.M., Sc.D., M.D., NEW YORK.

INTRODUCTORY REMARKS.

WHEN I first began, about eight years ago, to study the various bands, folds, membranes, and other adventitious structures found within the abdomen, and to consider the relationship of these to chronic intestinal stasis, little heed was paid by the general body of the medical profession to this field of investigation in which Sir Arbuthnot Lane, of London, is unquestionably the pioneer. It is, therefore, with keen pleasure that I have watched the awakening of interest, of which this symposium is, in a way, the culmination. A few years ago Lane's statements with reference to the existence of these newly formed structures, to which he gave the name, "evolutionary bands," were received with incredulity, and his conclusions with regard to relationship between these tissues and chronic intestinal stasis were met with skepticism. Now, however, as he has told us, so many "bands," "folds," "veils" and "membranes" are being found within the abdominal cavity that some maintain that they cannot possibly be the cause of chronic intestinal stasis.

While doubt concerning their existence has been practically eliminated by repeated verification on the part of many observers, the origin and effect of these structures continue to call forth differences of opinion.

There has become manifest, too, in the development of the entire subject, that unfortunate tendency which so often characterizes scientific work, to label things with the names of those who first specifically described them. And so, we have the "bloodless fold of Treves," the "parieto-colic peritoneal fold of Jonnesco and Juvara," the "genito-mesenteric fold of Reid," the "ileo-pelvic band" and other "bands" of Lane, and the newly-formed veil of peritoneum"—"Jackson's membrane"—the last being the special subject for discussion on this occasion.

It seems to have escaped the attention of many investigators that Sir Arbuthnot Lane, in 1901,[1] first called attention to a "large vascular peritoneal apron" having an attachment to the abdominal wall outside the cecum and colon, and extending inwards over it and being firmly attached to its surface." "Its object," he said, "is clearly to limit the range of movement of the cecum, and to control its distention." This vascular peritoneal apron, according to Lane, is continuous with bands deep in the loin. These bands of peritoneum, which are sometimes spoken of as adhesions, are attached posteriorly deeply in the loin, and are often very strong, giving rise to obstruction of the upper part of the ascending colon, and producing distention and hypertrophy of the cecum. Aside from the inflammatory cases, where the adhesions are the sequel of peritonitic or appendiceal processes, other cases were explained by him as having apparently developed in consequence of an habitual distention of the cecum, as the result of constipation. This state of affairs, he maintained, is very common but not sufficiently recognized.

In 1903[2] Lane again called attention to the subject of this interference with the drainage of the intestinal canal, and again emphasized the vital importance of its recognition. He contended that the free passage of the intestinal contents through the hepatic flexure is interfered with by the development of a mesentery which is attached to the outer surface of the cecum, ascending colon, and the hepatic flexure. He presented a diagram showing the "bridles" formed by the shortening up of the longitudinal fibres on the front of the ascending colon, stating that these "bridles" are so marked in some cases as to require to be partly divided in order to restore the colon and cecum to their normal position and their capacity for the efficient performance of their function.

When I first began to study these conditions with Lane, this peritoneal apron to which your distinguished president subsequently gave the name, "pericolic membrane," as well as the various other folds and bands which are commonly found in chronic intestinal stasis, were demonstrated to me by him numbers of times at Guy's Hospital. They were not given specific names, and were not considered by him as separate entities, each with its own particular sphere of activity in the production of abnormal conditions within the abdomen, and each invested with its own particular set of symptoms; he rather considered them as parts of the great whole,—the causation and symptomatology of chronic intestinal stasis.

Lane's dominant idea in studying the cases which have come to be known under the diagnostic term of chronic intestinal stasis, was to work back from the widely divergent manifestations which we now consider to be the symptom-complex of stasis, to the underlying cause or causes. At the same time, naturally, he was working in the opposite direction, from the abnormal intra-abdominal manifestations which have come, carelessly, and without his approval, to be known as "Lane's bands," and "Lane's kinks," to the possible pathological effects produced by these. Coincidentally, of course, he studied the pathogenesis of these intra-abdominal tissue formations.

Thus Lane, recognizing the existence of these

* Presented by invitation, with lantern slide illustrations, before the twenty-third annual meeting of the Western Surgical Association, December 19, 1913, at St. Louis, Mo.

pathological structures within the abdomen, studying their pathogenesis, tracing their relationship to a wide variety of pathological manifestations, and developing a system of preventive and correctional measures, has played the rôle of the true pioneer, pointing the way to a new field for exploration, a new territory for useful endeavor. Lane, in other words, has stood on the mountain-top, so to speak, and has swept his eye completely around the horizon.

Having worked with him on my various visits to London for several years, having studied his cases before, during, and after operation, having repeatedly seen his hypothesis with reference to the existence of these causative factors in the production of chronic intestinal stasis verified upon the operating table, and having substantiated his findings in a large series of my own cases, I have tried to follow his example, and to sweep my own mental vision around the horizon rather than to fix my gaze upon this, that or the other particular point.

Therefore, with no possible desire to detract in the slightest degree from the brilliant work of your distinguished president, of Jonnesco and Juvara, of Douglas Reid, of Treves, and of the many others who, latterly, have contributed to the investigation of this interesting and important subject, I wish to emphasize what seems to me to be the logical point of view, that of considering all these intra-abdominal abnormal structures, whatever their origin and situation, as parts of the great whole, as possible factors in disturbing the body drainage in the production of chronic intestinal stasis.

For purposes of convenience of comparison I append brief descriptions of the various structures which come into consideration in connection with the bands described by Lane:—

1. *The Bloodless Fold of Treves.*[3] This fold is described by Reid[4] as follows: "Passing from the mesenteric border of the appendicular cecum and from the nonmesenteric border of the last part of the ileum to the posterior and lateral abdominal wall is a sheet of the peritoneum. This forms the anterior wall of a fossa completely closed save below. Its orifice is bounded in front by the free lower edge of the peritoneal sheet, medially by the ileum and the adhesions which bind this down, and posteriorly and laterally by the parietal peritoneum."

The fold of Treves passes over the caput coli and appendix, and, as Eastman[5] has pointed out, may adhere to the abdominal wall and resist for a time the completion of cecal torsion. Eastman suggests that the lower inner border of the bloodless fold of Treves may resist the drawing upward and inward of the last part of the ileum, thus preparing conditions favorable to the formation of Lane's kink, or actually causing it.

The Parieto-colic Peritoneal Fold of Jonnesco and Juvara.[6] In the majority of the cases this fetal fold arises from the peritoneum at the left or inner side of the ascending colon, passing over the anterior aspect of the ascending colon in an upward slanting direction. It is attached to the parietal peritoneum at the right of the ascending colon. It may adhere to the anterior and lateral aspects of the colon.

Practically the same relations as are presented by the parieto-colic fold or Jackson's membrane, when found in the adult, have been attributed by Reid[6] to the above-described fetal fold.

Several succeeding stages of the formation of Jonnesco's fold were found by Eastman,[6] indicating that adhesions may form between the serosa of the cecum and the mural serosa while the cecum is still sub-hepatic. The subsequent descent, with torsion or rolling inward upon the long axis, draws the parietal serosa over in front of the ascending colon in a slanting or spiral direction, like a ribbon wound spirally around a rolling cylinder.

"Jackson's Membrane." Jackson[7] describes this structure as follows "From a point just at the hepatic flexure to three inches above the caput coli there spreads from the parietal margin over the external lateral margin to the internal longitudinal muscle band, a thin vascular veil, in which long straight unbranching blood vessels course, most of which are parallel with each other and take a slightly spiral direction over the colon from the upper peritoneal attachment to the inner lower portion of the gut ending just above the caput. The appendix is not implicated in any way. Coursing with the blood vessels are numbers of shining narrow bands of connective tissue, which gradually broaden as they go and end in a slight fan-shaped attachment at various points on the anterior and inner surfaces of the colon. At these points of attachment the gut is held in rigid plication. At the beginning of the hepatic flexure the drawn membrane particularly angulates the contained colon."

The Genito-mesenteric Fold of Douglas Reid.[8] This fold of peritoneum, which is said to be rather common, passes from the mesentery of the terminal segment of the ileum down into the pelvis, being attached in the fetus to the genital gland below. It has, therefore, a secondary connection with the ileum and, through the peritoneum of the meso-appendix, with the appendix itself, under which it passes. This connection is perhaps responsible for the frequent association of appendicitis and oophoritis. Adhesions of the colon to the peritoneum of its own mesentery were also pointed out by Reid.

This genito-mesenteric fold is found in a surprisingly large percentage of fetuses after the seventh month, or even after birth at term, and Eastman[9] has found it in the adult.

"Attic Adhesions" (Morris),[10] "Anatomists have noted that web-like adhesions were found in the bile tract region so frequently that they seemed to be almost a normal characteristic of the region. We used to feel the same way about adhesions in the cecal region. Byron Robinson called attention to the fact that adhesions were

found in the bile tract region more frequently than elsewhere in the peritoneal cavity excepting in the pelvis in women; and that the cecal region stood third in order of abundance of adhesions." Peritoneal adhesions, according to Morris, are found to some degree in almost every adult on post-mortem examination. Those in the upper part of the abdomen he has aptly called "attic adhesions."

Origin of Intra-abdominal "Bands," "Folds," and "Veils." Three chief theories concerning the pathogenesis of the intra-abdominal structures under discussion have engaged the attention of the different investigators: (1) mechanical or evolutionary (Lane), (2) embryonic or congenital, (3) inflammatory and infectious. In addition to these, the combined congenital and acquired factors have been suggested as playing a part in the development of these structures as they are found in the adult.

Embryonic or Congenital Theory. In an early stage of fetal life the entire abdomen is filled with bands, resembling the conditions seen after an attack of peritonitis.[11] Toward the conclusion of fetal life these bands disappear and the adhesions melt away, although some may persist, as certain investigators have maintained. In order to determine how frequently such bands may persist and become factors in the production of chronic intestinal stasis or other abnormal condition involving the abdominal viscera, it will be necessary to examine carefully a large number of young infants as well as fetuses at various stages of development.

Chapple, in a recent personal communication, reports having dissected twenty-eight fetuses without finding any bands of the type associated with "Lane's kinks" and chronic intestinal stasis. Professor Keith, of the Royal College of Surgeons, London, examined in my presence last fall fifteen fetuses, in three of which he thought there was a rudimentary band that might be a factor in producing stasis. I must say that I was not convinced of this, as the bands were not at all similar to those found in the adult static individual. Eastman, and other investigators, have found a larger proportion of these prenatal structures which have been thought to persist, in some cases, in the adult, giving rise to some of the disturbances in which the gastro-intestinal tract is concerned. It is not within the scope of this paper to discuss the weight of evidence concerning the theories proposed to account for the existence, in the fetus, of these abnormal structures. More study is necessary before a conclusion can be reached.

Inflammatory and Infectious Theory. The inflammatory and infectious bands may be classed as, (1) endogenic—resulting from peritoneal reaction from infection within the colon, and (2) exogenic—resulting from infections transmitted from some inflamed organ in the immediate vicinity. Prolonged or repeated mild infections of the peritoneal covering of the cecum and appendix, transmitted through the intestinal wall, are considered by Pilcher[12] as a causative factor in the production of these membranous bands. Gerster[13] assumes a reaction of the peritoneum to infection and chronic inflammation of the colon, in the form of "characteristic vascularized transparent membranes (pseudo-peritoneum), which take their origin along the external lateral aspects of the cecum, ascending colon and hepatic flexure on one side, and the sigmoid flexure, descending colon, and splenic flexure on the other."

Inflammation, undoubtedly, plays a part in the formation of some forms of the membranous structures found within the abdominal cavity, and hence in the production of intestinal obstruction of one kind or another. It seems to me, however, that all these formations are to be distinguished from those which Lane describes as being of mechanical or evolutionary origin. For, as Lane has shown, these acquired bands, which he calls evolutionary, commence at a point most distant from the intestine, gradually approaching and securing the bowel. Inflammatory bands, on the other hand, commence at the point of attachment, progressing away from this.

Mechanical or Evolutionary Theory. Of the various theories proposed to account for the structures under discussion, that of Lane is, to my mind, the most plausible, accounting, as it does, for a much larger proportion of the cases than does either the embryonic or the inflammatory theory.

In a recent communication,[14] in discussing the influence of alimentary toxemia upon the bony structures, Lane laid down the following three laws as governing the changes which take place in consequence of the altered mechanical relationship of the individual to his surroundings:—

(1) "That pressure produces changes in the structure and form of the bones and in the form and function of existing joints, while it determines the formation of new joints."

(2) "That strain produces change in the form of the bones, and in the form and function of existing joints, and also produces new joints."

(3) "That when, apart from the exercise of pressure or strain, it is important, from the altered mechanical relationship of the individual to his surroundings, that a mechanism should be modified or an entirely new one developed, such a change takes place."

These same mechanical principles, according to Lane, govern the soft parts of the body and modify their structure. Following this line of reasoning, he has applied these laws to the abdominal cavity, and in this manner has accounted for the development of the various adventitious structures which he associates with chronic intestinal stasis in the majority of cases.

The membranous adhesions between the outer wall of the colon and the abdominal parietes, as well as in other segments of the intestinal tract, which were noted by Lane in cases of chronic intestinal stasis, were interpreted by him as newly

developed accessory ligaments, serving to counteract the tendency to enteroptosis incident to the disturbed mechanical relations of the bowel consequent upon the assumption by man of the upright position. In other words, the origin of these bands about the ascending colon, hepatic and splenic flexures, sigmoid, and other portions of the gastro-intestinal tract is referred by him to the mechanical factors of chronic constipation and the upright posture. He holds that nature attempts to relieve the strain of the persistent enteroptosis, and that the dragging of the displaced bowel is offset, as it were, through hypertrophy of its membranous supports—"the crystallizations of resistance," "the crystallization of lines of force,"—a physiological response to a mechanical demand, which conforms to the three laws as stated by him.

The mechanical relations of the large bowel are impaired primarily by the overloading of the large gut and of that portion which serves more especially as the cesspool of the gastro-intestinal tract, the cecum and the ascending colon. The excessive distention of this portion of the tract results very largely from the erect or sedentary posture of civilized man. While the cecum and ascending colon have great difficulty in passing on their contents in the erect posture, the evacuation of the cesspool is very much facilitated by the assumption of the supine position. Through the changed mechanical relations of the bowel, intestinal surfaces not normally in contact come into apposition, with the result that more adhesions form and interfere further with the passage of material through the lumen already constricted at the flexures. Obstruction of the appendix due to its acquired abnormal fixation, is a very common concomitant of the alteration in the form and mechanical relations of the cecum, and Lane directs attention to the relationship of so-called "appendicitis" to the overloading of the cesspool or cecum.

Lane has pointed out that obstruction in the drainage scheme may occur, in the first place, at points of normal fixation; that, in the second place, the intestine may become kinked by acquired bands, etc., " which formed in the first instance by nature, with the object of facilitating drainage, may have later come to cause very material obstruction." He has also directed attention to the various sites in the length of the alimentary tract at which this obstruction may occur, the points of predilection being: (1) in the third part of the duodenum, at the commencement of the jejunum; (2) at different points along the terminal coil of the ileum; (3) in the ileo-cecal region, including the appendix: (4) in the region of the hepatic flexure and the first part of the transverse colon; (5) at the splenic flexure; (6) at the sigmoid loop; (7) in the rectum.

These various changes involving the large bowel are admirably shown in Fig. 1 (Fig. 43, *op. cit.*, Lane, p. 84).[15]

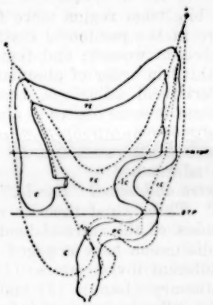


FIG. 1. Represents the several variations from the normal which the large bowel undergoes. The normal condition is shown as a firm outline, and the altered condition as a dotted outline. Note the prolapse of the cecum and transverse colon, the telescoping of the iliac colon and the elongation of the pelvic colon. (BTP) indicates the brim of the true pelvis. The hepatic and splenic flexures are drawn up and kinked by the development of acquired resistances shown by arrows.

I may say, in this connection, that in my own cases I have repeatedly verified many of Lane's findings, as I shall show upon the screen. It is often my practice, when operating upon patients whose condition has been shown, by the various diagnostic methods at our command, to be chronic intestinal stasis, to have an artist and a stenographer in the operating room. The artist, who is skilled in the recognition of anatomical conditions and the portrayal of these upon paper, sketches the conditions found in each case, taking accurate notes for purposes of identification. The stenographer notes the description of the condition and its treatment, as dictated by the operator. The finished drawings are then checked up by those who saw the operation. The pictures which I shall present, as verification upon the operating table of conditions portrayed by Lane in the diagrammatic sketches which I shall throw upon the screen, were made in the manner described. They have been selected from a large number merely as evidence of the existence of these bands, and as seeming to corroborate Lane's view with regard to the evolutionary nature of these structures.

"Jackson's Membrane" and Ileal Kink. Fig. II. (Fig. 32, *op. cit.*, Lane,[16] p. 25.) The tendency to displacement in the dilated cecum in a downward and inward direction is regarded by Lane as acting along the resultant of a parallelogram of forces. In order to oppose this tendency, resistances develop which correspond in position and action to the sides of the parallelogram. These lines of resistance, Lane maintains, "are crystallized first as bands, and later as distinct membranes, which as the outer limb of the parallelogram, connect the peritoneum lining the abdominal wall to the outer surface of the colon n its immediate vicinity. A larger area of abdominal peritoneum and of colon is gradually involved, and later still, as is the case in all

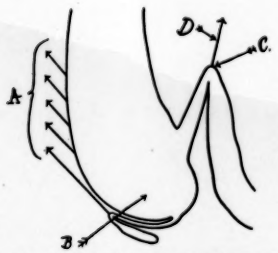


FIG. 2.—(A) Jackson's membrane, the lower part of which involves the appendix. (B) The distended loaded cecum. (C) Ileum kinked by band (D).

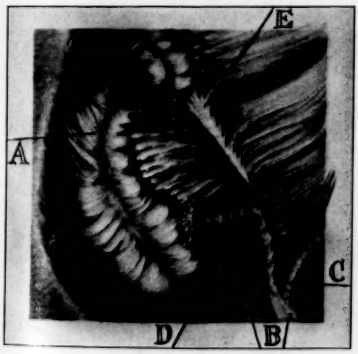


FIG. 2 a.—(A) Jackson's membrane. (B) Multiple Lane's bands. (C) Lane's kink. (D) Appendix caught in bands. (E) Thickened part of mesentery forming a strong band.

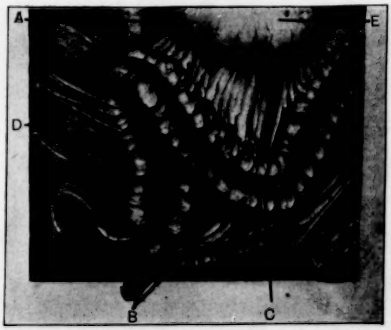
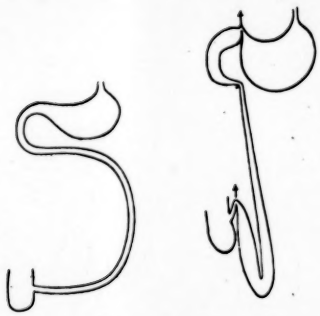


FIG. 2 b.—(From *B. M. J.*, Nov. 1, 1913.) (A) Dilated duodenum. Angulated duodeno-jejunal junction. (B) Lane's band and kink. (C) Prolapsed transverse colon. (D) Jackson's membrane. (E) Gastric dilatation.



FIGS. 3 and 4.—(1) Normal condition of stomach, small intestine and cecum. (2) The several changes which result from ileal obstruction.

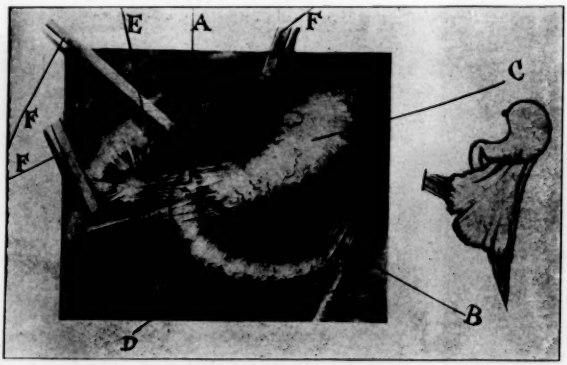


FIG. 4 *a*.—(A) Kinking at pyloric outlet. (B) Duodeno-jejunal kink. (C) Dilated stomach. (E) Bands to gall bladder. (F) Retractors holding up liver.



FIG. 4 *b*.—Another illustration of practically the same conditions shown in Fig. 4 *a*. Only more marked and loop of jejunum thrown to the right.



FIG. 5.—Normal curve of duodeno-jejunal junction.

FIG. 6.—Angulation of duodeno-jejunal junction produced by bands.

FIG. 7.—Nature's efforts, by the formation of bands, to prevent angulation.

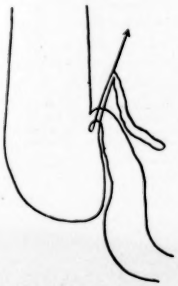


FIG. 8.—"Appendiceal Tie," with ileum kinked above by the appendix, and distended below.

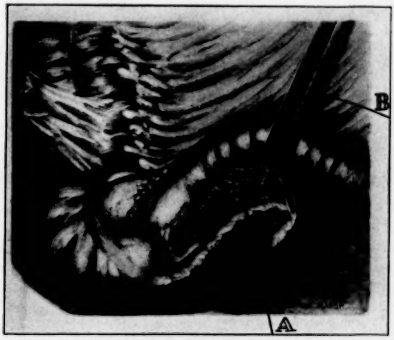


FIG. 8 a.—(A) Appendix caught up by band. (B) Retractor holding up ileum. When ileum is allowed to drop over appendix, the condition shown in Fig. 8 results.

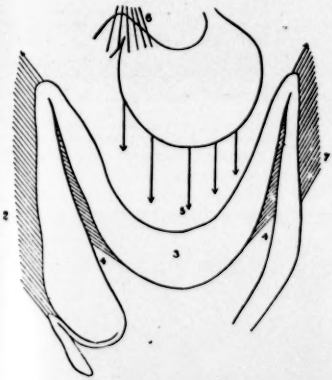


FIG 9.—(1) Represents the prolapsed cecum; (2 and 7) the crystallized resistances which tend to oppose the downward displacement of the large bowel and sustain some of the weight of the transverse colon transmitted through the crystallized resistances (4); (3) the transverse colon; (5) portion of the weight of the transverse colon transmitted through the great omentum to the convexity of the stomach; and (6) the acquired ligament that secures the duodenum and pylorus to the under-surface of the liver and gall-bladder.

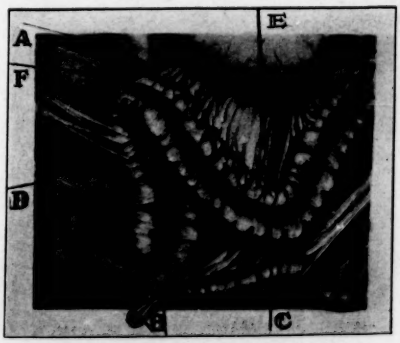


FIG. 9 a.—(From *B. M. J.*, Nov. 1, 1913.) also FIG. 2 b. (A) Dilated duodenum. Angulated duodeno-jejunal junction. (B) Lane's band and kink. (C) Prolapsed transverse colon. (D) Jackson's membrane. (E) "Portion of the weight of the transverse colon transmitted through the great omentum to the convexity of the stomach." (F) Acquired ligament securing duodenum and pylorus to under-surface of liver and gall-bladder.

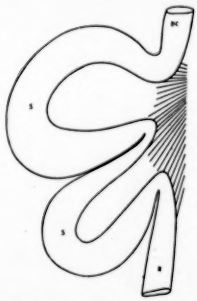


FIG. 10.—Fixation and obstruction of sigmoid.

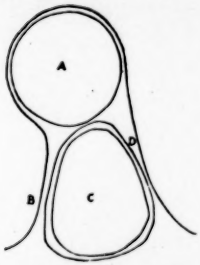


FIG. 12.—(A) represents the colon in transverse section; (B) the original mesentery; (C) the cystic ovary lying free in a cavity; and (D) the remains of the acquired adhesions.



FIG. 11.—Diverticulitis of sigmoid produced by approximation of two ends of loop of sigmoid.

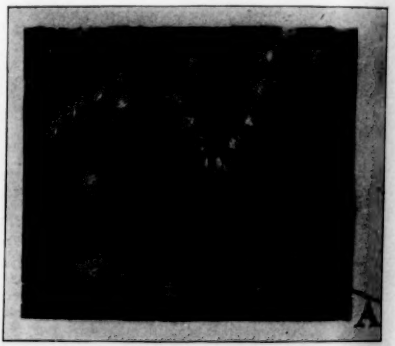


FIG. 12 *a*.—(From *Medical Record*, Sept. 27, 1913.) (A) Band in which stump of tube and ovary is caught.

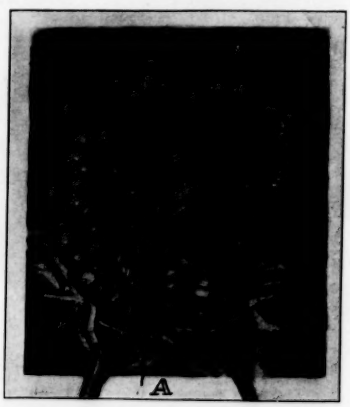


FIG. 11 *a*.—(From *Medical Record*, Sept. 27, 1913.) (A) Band Holding in approximation two ends of sigmoid loop, causing a diverticulum.

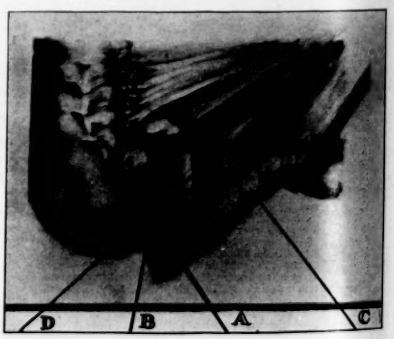


FIG. 13.—(A) Lane's band and kink. (B) Appendix caught behind. (C) Dilated and thickened ileum. (D) Collapsed and thinned ileum.

resistances which are crystallized in peritoneum, the bands are replaced by a layer of peritoneum which clings and tends to support the colon from the outside. As these bands and membranes develop, blood vessels form in them which later may become sufficiently large to require to be ligated if divided. This particular resistance when fully developed into a membrane, has recently been termed 'Jackson's membrane.'"

The distended loaded bowel is here shown dragging upon the resistances evolved to oppose its downward displacement into the true pelvis. The resistances external to the cecum are indicated by an arrow showing the general direction of the strain exerted by bands, adhesions, and omental structures. The lowest of these secures the appendix, which is kinked. The effects exerted upon the ileum at its point of fixation by the weight of the loaded cecum on the one side of it and by that of the obstructed loop of the ileum on its proximal aspect, are shown.

Fig. II-a, from my own series, represents Jackson's membrane and the ileal kink. Fig. II-b, which will be presented again,[17] shows the appendix caught back in the parieto-colic membrane, in a fashion similar to that portrayed diagrammatically in Fig. II.

The "crystallized resistances of peritoneum" are not limited to the cecum, but may extend up along the outer aspect of the ascending colon, even to the hepatic flexure, as we have already seen.

Ileal Bands. The inner limb of this parallelogram of forces is represented, according to Lane, at an early period by opaque streaks on the under surface of the mesentery, attaching the last few inches of the ileum, and commencing at its base at a point most distant from the bowel. The reason for this development he considers obvious: "Besides retaining the end of the ileum in position, the mesentery assists through the medium of the termination of the small intestine in holding up the cecum and in tending to oppose its downward displacement." "In its earliest development," he says, "as is the case with most conditions which evolve during the lifetime of an individual, because of a variation from the normal in the relationship to his environment, the effect of this acquired ligament or mesentery is useful and physiological, but later, when it kinks and obstructs the lumen of the ileum, it exerts a progressively deleterious effect on the well-being of the individual."

When this state of affairs develops, the inner limb of the parallelogram of forces, according to Lane, is represented by the portion of the ileum distal to the kink, "by the contracting acquired membrane which creeps around the circumference of the bowel, and by the posterior layer of the mesentery to which the membrane is attached. The upper layer of the mesentery presents no change, as abnormal strain is not exerted along it, but through the under layer only. In these circumstances the portion of the ileum between the cecum and the attachment of the acquired ligament is made to perform the function of a ligament very much more than is the case in the normal arrangement."

In Figs. III and IV (Figs. 36 and 37, *op. cit.*, Lane, p. 30), respectively, are diagrammatically indicated: (1) the normal condition of the stomach, small intestine, and cecum; (2) the several changes which result from ileal obstruction. The part of the ileum just beyond the kink in the ileo-cecal region becomes dilated and drags upon the duodeno-jejunal junction, at which point a crystallization of lines of force takes place, with resultant kinking. The duodenum, as a consequence of this obstruction to its drainage, becomes dilated, throwing an abnormal strain upon the lesser curvature in the neighborhood of the acquired suspensory ligament with which nature has endeavored to forestall trouble. This ligament becomes crystallized into a "resistance," and finally a kink takes place at the pyloric outlet. These conditions are indicated in Fig. IV-a and Fig. IV-b, of my series.

Duodeno-jejunal "Resistances" and Kink. Figs. V, VI, and VII (Figs. 39, 40 and 41, *op. cit.*, Lane, p. 80) are further illustrations of possible duodeno-jejunal conditions. Fig. V shows the manner in which the duodenum usually terminates vertically at the root of the transverse meso-colon, where it is continued into the jejunum as a gentle curve. Fig. VI represents the kinking and twisting at the duodeno-jejunal junction as the result of the strain exerted by the jejunum, and the consequent obstruction to the effluent from the duodenum. The resistances which, as peritoneal bands, are developed to oppose this drag upon the jejunum and the obstruction of the duodenal outlet, are represented by the arrows. These bands, it will be seen, run upwards from the commencement of the outer aspect of the jejunum to the peritoneum lining the adjacent abdominal wall. Fig. VII represents nature's efforts to ward off angulation at the duodeno-jejunal juncture by the development of "resistances crystallized in membrane," fixing the jejunal loop so as to avoid kinking. Fig. IV-a of my series, shows the angulation. I happen not to have in my series one to illustrate Fig. VII.

Lane has repeatedly emphasized the far-reaching effects of obstruction at the duodeno-jejunal junction. The distention of the duodenum, the dilatation of its lumen and hypertrophy of its wall, the infection of the contents with alien organisms, the lowering of the vitality of the gut by auto-intoxication, vascular enlargement, varying degrees of inflammation, ulceration, possible perforation, possible cicatrization, and stenosis of this portion of the bowel, are some of the phases of this condition. In consequence of infection of the duodenal contents, the pancreatic and common bile-ducts, which open into the duodenum, are infected, resulting, according to Lane, in more serious affections of the pancreas and the liver.

"Appendiceal Tie." In Fig. VIII (Fig. 38, *op. cit.*, Lane, p. 31) is represented diagrammatically the mechanism of the "appendiceal tie," or the "resistance" when it forms part of the inner limb of the parallelogram of forces. The cecum and ileal loops are both here shown to be distended with fecal contents, and as having fallen into the true pelvis. The end of the ileum is here shown as it hangs over the fixed portion of the appendix, which is secured by its acquired membrane or crystallized resistance (indicated by the arrow). The lumen of the ileum is thus diminished by this fixed portion of the appendix. The greater the drop of the cecum, as it pivots on the fixed appendix, and the greater the dropping and distention of the ileum, the more complete does the obstruction by the appendiceal tie become. This, I think, is perfectly apparent.

In Fig. VIII-a, from my series, the appendix is caught up in such manner that when the ileum is not held up, as it is shown in the picture, it drops over the appendix, and becomes kinked in the manner shown in Fig. VIII.

"Resistances" Which Involve Pancreas, Liver, Stomach and Large Intestine. Fig. IX (Fig. 42, *op. cit.*, Lane, p. 35) represents the mechanism whereby the pancreas, liver, stomach and large intestine, as well as the small intestine, are involved in the development and crystallization of lines of resistance. In this diagram 1 represents the prolapsed cecum; 2 and 7, the crystallized resistances which tend to oppose the downward displacement of the large bowel and sustain some of the weight of the transverse colon transmitted through the crystallized resistances, represented by 4; 3, the transverse colon, prolapsed; 5, portion of the weight of the transverse colon transmitted through the great omentum to the convexity of the stomach; 6, the acquired ligament that secures the duodenum and pylorus to the under surface of the liver and gall-bladder.

Fig. IX-a, of my series, represents these conditions.

Fixation and Obstruction of Sigmoid. Figs X and XI (Figs. 46 and 47, *op. cit.*, Lane, pp. 41 and 43, respectively) represent (1) fixation of the sigmoid loop, and (2) the production of volvulus by the approximation of the ends of the loop, by means of acquired adhesions.

Fig. XI-a, from my series, is an excellent illustration of the condition represented in Fig. XI.

The "Last Kink." The "last kink," which affects the large bowel where it crosses the brim of the true pelvis on the left side, is represented in cross section by Fig. XII (Fig. 48, *op. cit.*, Lane, p. 92). Lane attaches great importance to this obstruction, which develops early in life. The bands which cause this obstruction form on the outer surface of the mesentery of this part of the large bowel, and are, in his opinion, like all other acquired mesenteries and adhesions, the crystallization of lines of resistance to downward displacement. The ovary and Fallopian tube are often involved in these adhesions.

Fig. XII-a, of my series (from *Medical Record*, Sept. 27, 1913), shows adhesions between the stump of the ovary and tube and the sigmoid. The ovary had been caught in the adhesions, and had been removed before I saw the case. The adhesions re-formed about the stump, as shown in the picture.

Fig. XIII represents the findings in a case of marked chronic intestinal stasis, operated upon by Sir Arbuthnot Lane, the writer assisting, at the New York Polyclinic Hospital, Nov. 28, 1913. It shows a small "Lane's band," an ileal kink, the appendix caught up behind, a dilated ileum with much thickened wall, and the collapsed part of the ileum with thinned wall. At operation a non-vascular band was found angulating the terminal ileum and binding it down deeply in the pelvis. General visceroptosis. Duodenum dilated, extending almost into the true pelvis. Marked secondary evidence of static condition in other organs. Note the absence of Jackson's membrane and other bands.

From this categorical summary of Lane's exposition of the changes which take place, within the abdomen, in consequence of the altered relations brought about by the assumption of the upright posture, it seems to me that he makes out a very good case for his mechanical or evolutionary theory of the origin of all the adventitious structures which, in his opinion, play so important a part in the production of chronic intestinal stasis. It may be said, however, that much work needs yet to be done before any theory can be firmly established. We are only beginning to explore the field which he has opened to us. The establishment of the existence of these various structures takes us a long way. We have yet to determine more about their origin, and to follow the leads which he has given us with reference to the far-reaching effects of the conditions brought about by the development of these structures. The field, it seems to me, is one of the most alluring and promising which modern medicine and surgery present. It is certainly rich in promise for the many who, otherwise, would be doomed to more or less complete chronic invalidism.

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[17] See Fig. 9-a.

THE PROGNOSIS OF SARCOMA OF THE TESTICLE.

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AND

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IT sometimes requires a personal interest to stimulate a real effort to find out the facts about a given surgical problem. Recently we operated on a case of sarcoma of the testicle and it happened that "the case" was an intimate friend of one of the writers. We had seen the tumor when it was quite small and had made a diagnosis of tuberculous epididymitis. This diagnosis was based on the fact that apparently the epididymis was involved and not the testicle proper, and that small nodules were present in the other epididymis and in one of the seminal vesicles. It was further substantiated by the presence of a quiescent tuberculous focus in the apex of one lung. Two prominent genito-urinary specialists confirmed the diagnosis and two tuberculosis specialists accepted the diagnosis without question.

These facts are mentioned because our further investigations showed that similar mistakes occasionally occur and that the reason is that the text-books usually state that sarcoma does not begin in the epididymis. We have found cases which show that this is not a fact.

Eventually the testicle was removed—nine months after the lesion was first noticed and when the tumor was the size of a small lemon. Fortunately we had begun to suspect sarcoma, and removed the entire contents of the scrotum from the internal ring down, without attempting exploration, which might have spread the disease. On section the epididymis and testicle were almost wholly replaced by the growth, a portion only of the testicle being compressed to one side. Nevertheless, the disease had not passed the tunica albuginea anywhere and was perfectly encapsulated.

Therefore on the whole the conditions were more favorable than usual, for it was fairly early, no obvious metastasis or local extension had taken place, and neither tapping nor exploration had been given their opportunity to spread the disease.

What are the chances for this patient?

Here is what prominent text-books say in regard to the matter. Watson and Cunningham say: "The operation to be of any value and to offer any hope of cure must be done early and must include the cord, the inguinal lymph nodes and also the deeper abdominal chain." Bevan in Keen's Surgery says: "The prognosis is bad. I have never seen a permanent cure, even after fairly early and complete castration." Bonney gives the most hopeful statement in regard to our patient. He says: "It is only when the tumor is still confined within the tunica albuginea that there is any hope of cure." Guiteras remarks vaguely but probably truly that the "prognosis depends almost entirely on the presence or absence of metastatic involvement of the abdominal glands." Greene-Brooks offers slightly more hope in saying that "early removal generally warrants a better prognosis than in most cases of sarcoma elsewhere."

In regard to origin, Watson and Cunningham say that the disease rarely begins in the epididymis. From other authors we gather little information that this is even a possibility. In all the books the classical differentiation is between tuberculous epididymitis, syphilis, and tumor.

A search of recent journal literature led us to two articles—real contributions, not advertisements. These were enlightening. Chevassu, after extensive pathologic study, became clinical and really looked up some cases to find out what did happen. In the first place he simplified the classification which had been so mysterious and confusing in the text-books, and practically reduced all tumors of the testicle to two,—the seminoma and the mixed tumor. Using these clinical classifications he gives us the results of his researches as follows:

Number of cases	100
Living four years after castration	19
Dead	81

That is, 19% of his cases were cured by castration. Of the 19 cured, 16 showed pathologically "epithelioma seminal," but only 3 were of the "mixed" type. He cites two cases in which additional dissection was done and the abdominal glands showing metastatic involvement, removed. He, therefore, demonstrated the practicability of the operation, but sufficient time had not elapsed to prove a complete cure. The greater the variation in tissue, the worse the prognosis. This certainly looks more hopeful for our patient, who is distinctly in the seminoma class.

The second article was by Ewing of New York, pathologist to Columbia.

This paper is a pathologic one and in brief reduces the pathologic classification still further, for in the end he shows us that all these testicular tumors, sarcomas, adenocarcinomas, teratomas, and all the wordy changes which have been rung on similar terms amount to this: That one and all are derived from the spermatic cells and like the cells themselves have

all possibilities of development short of a complete fetus.

Almost every tissue known in the body has been found in a testicular tumor—even a nearly perfect uterus. Thyroid glands, perfect teeth, bone, cartilage, etc., have been demonstrated; often several tissues in the same case. Usually, however, the epithelioid elements outgrow all the others and we have a simple large round-celled tumor, which one pathologist classes as sarcoma because it arises from a mesoblastic organ, and another calls alveolar carcinoma because of its cellular arrangement and appearances. Practically all testicular tumors contain some of this tissue, though sometimes it is outgrown by the teratomatous elements. When pure it is the common tumor which we call sarcoma or carcinoma and Chevassu calls seminoma.

We have undertaken to look up the cases operated on at the Massachusetts General Hospital in the last forty years to see whether our facts fit those of Chevassu.

Owing to the varied character of the nomenclature of the pathologic reports of our cases we have considered it best not to endeavor to separate the different forms and we simply accept the view of Ewing that all testicular new growths are essentially the same. During this period we find 80 cases, classified chiefly as sarcoma or carcinoma of the testicle. Sixty-three have reports of pathologic examination of the specimens removed at operation. In the cases of those without reports the clinical diagnosis was sarcoma or carcinoma.

Of the 80 cases we are unable to procure the end results of 16. It is hardly fair to suppose that all of these have died, since in the case of at least four of them registered mail has not been returned to the writers after over a month's interval.

Of the 64 known cases we can present the following figures:

Living and well	13
All operated.	
Dead from other causes	12
10 operated.	
Dead from disease	39
33 operated.	

This gives the mortality from the disease 61.9%. Excluding those not operated, in which the condition of the testicle was manifestly inoperable, or else discovered at autopsy in deaths from entirely different diseases, the mortality is reduced to 58.93%.

This is of course a large figure; but is it not much smaller than we have been taught to believe? Thus out of 56 cases operated, we find that 13 are living (average time after operation 9 yrs.; extremes 2 and 28 yrs.), and that 10 have died from something else (average time after operation, 10 years; extremes, 7 months and 26 years). That is, 23 or 41.07% of those operated survived the disease. If 8 unoperated cases and 12 cases operated on when metastases were evident are excluded, we find that 52.27% were cured. We must conclude, therefore, that the prognosis of sarcoma of the testicle, while bad, is not, when operated, so universally bad as text-books would lead us to infer. We, therefore, believe that the prognosis of our case is better than even.

Among our 64 known cases we find but one with the origin of the disease in the epididymis, but among the 16 the results of which were not traced, there are two of this nature. In these three cases the preliminary diagnosis was tuberculous epididymitis; in two the pathologic report was sarcoma; in the third there is no record of pathologic examination, but macroscopically the specimen was sarcoma. Ewing also has seen cases where the tumor arose in the epididymis.

We find that in 4 of the 64 known cases the testicle had not descended at birth, thereby confirming Odiome and Simmons in the belief that the undescended testicle is more prone to sarcomatous degeneration than the normally placed organ.

Let us show the figures in tabular form:

Living and well, 13.
Age, 24 to 57 years. Average 42 years, 9 months.
Pathology—Simple tumors, 12. No report, 1.
Duration of symptoms before operation, 5 months to 5 years. Average 20 months.
Period elapsed since operation, 2 to 28 years. Average 9 years.
Tapped, 3.

The only operation done was orchidectomy

Died from other causes, 12.
Age, 24 to 68 years. Average 49.
Operated, 10.
Simple tumors, 5.
No report, 7.
Duration of symptoms before operation, 2 weeks to 2 years. Average 7 months.
Period elapsed since operation, 7 months to 26 years. Average 10 years.
Tapped, 2.

NOTE: The two cases not operated: one death from diabetes, the other from chronic nephritis with uremia. Autopsies on both.

In the case surviving but seven months after operation the patient was burned to death. The next case in point of time survived three years, death being due to injuries received in a fall. The remaining cases all survived over five years.

Died from disease, 39.
Operated, 33.
Pathologic report—Simple tumors, 34 (1 autopsy).
Age, 5 to 65 years. Average 37.
Metastases—Evident, operated 2, not operated 10; not evident 21.
Tapped, 6.
Duration of symptoms before operation, 2 months to 6 years. Average 15 months.
Duration of life after operation, 3 days to 3 years. Average 10.3 months.

NOTE: There is one more report than operation since one case had autopsy in the hospital.

The significant points we think are as follows: Of the 33 operated cases which died from the disease, 21 had no sign of metastasis at operation, yet death occurred in all within three years. Only 12 showed metastasis at operation; in spite of the fact that in 2 of these additional dissection was done, all were fatal.

Our figures confirm those of Chevassu, which show that a patient is safe after the three-year limit.

On theoretical grounds we believed that tapping in these cases was contraindicated in that new paths for lymphatic infection might be opened up. From our statistics, however, we do not find this hypothesis to be borne out by the facts, nevertheless we think it is a procedure to be avoided.

Nearly every case gave a history of trauma; but we are not inclined to regard this as important in the etiology.

In two of the cases in the group of "Dead from Other causes" we find skin ulceration at time of operation. We therefore take exception to the statements about the hopelessness of those cases with extension beyond the tunica albuginea. One of these had a pathologic report of sarcoma, but in the other there was no report.

The radical operation, as advised by Watson and Cunningham and Chevassu, has not been done at the Massachusetts General Hospital. Whether had this been attempted, some of the 21 cases who died within three years in spite of no evident metastasis at time of operation, might have lived, is, of course, a question. In our case, in which the growth was still confined within the tunica albuginea, no further operation was done; but had the growth penetrated this structure, we believe further dissection would have been justified.

From 21 cases in which the location of metastases is mentioned, we find the following facts:

In abdomen alone	13
" abdomen and lung	1
" neck and liver	1
" axillae and abdomen	1
" lungs	1
" spinal cord	1

The great majority, therefore, show abdominal metastasis, and might be helped by a removal of the retroperitoneal glands.

Dec. 23, 1913. One patient has no sign of recurrence at present date. Operation Jan. 15. 1913.

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HAVE THE EARLY CLAIMS OF SALVARSAN BEEN REALIZED?*

BY C. MORTON SMITH, M.D., BOSTON.

THE extravagant claims which were made for salvarsan, on its introduction into the small group of specific remedies, are well known. To what extent are these claims being realized?

Organic arsenical compounds had been used at various times in the treatment of syphilis and skin diseases, as well as sleeping sickness. Some of the preparations were found to be dangerous, notably atoxyl, the use of which was frequently followed by total blindness due to a primary optic atrophy. With these results fresh in mind many cautioned against the use of arsenobenzol lest it, too, should prove to be neurotrophic.

In the light of experience with salvarsan, and its later modification, neosalvarsan, is there any real danger to the cranial nerves, and what are the contra-indications? My personal experience covers 37 months, during which time I have had to do with between 3000 and 3500 injections, all of which, with the exception of a very few at the outset, have been given intravenously.

Salvarsan should be administered as soon as a positive diagnosis can be made. In lesions uncomplicated by pus organisms, it is often possible to demonstrate spirochaetes very early with the dark stage microscope or the India ink method; it is more uncertain with stained specimens. Failing to find the organisms, the Wassermann test is usually positive by the end of the fourth or fifth week, sometimes earlier. Salvarsan injected before the appearance of secondary eruptions prevents or retards their occurrence. It is during the primary and early secondary stage that we believe the disease most curable. I have seen a small number of apparent cures follow a single injection of salvarsan, but we no longer expect this, therefore the injection is repeated in five to ten days and again in two or three weeks, and afterward as the case demands; usually from four to eight injections of salvarsan are given. Mercury, preferably by intramuscular injection, should be used to supplement the salvarsan, and the effect of treatment measured by the Wassermann reaction.

There is no doubt as to the value of such intensive treatment, and when given during the primary or early secondary stage, a negative Wassermann should be possible at the end of six to nine months, after which blood tests should be made two or three times a year for the next few years, resuming treatment should the test become positive. Many cases so treated still show negative tests.

When, for any reason, the treatment is delayed beyond the primary stage, it is more diffi-

* Read at a meeting of the New England Otological and Laryngological Society, Massachusetts General Hospital, Nov. 18, 1913.

cult to bring about a speedy serologic change. This is probably due to the fact that the germs are widely disseminated; have become more or less encapsulated, or walled off, by inflammatory products, and are not reached by the remedy. Iodide of potash is of value in such cases on account of its absorptive action on these inflammatory products, not being an active spirillicide.

It is the opinion of most syphilographers that mercury has not been displaced and that a combination of salvarsan and mercury in the treatment of syphilis is more effective than either alone. Wechselmann, on the contrary, cautions against this and is inclined to attribute some of the accidents that have occurred to this combined method.

In general the early manifestations of syphilis are a menace to the community, while the late lesions are dangerous to the individual from damage to the nervous or circulatory system. Primary and secondary lesions heal promptly under salvarsan, and as these are the common sources of infection much is done in preventing contagion. Chronic papular eruptions of palms and soles are especially resistant to mercurial treatment. These yield promptly to salvarsan. This drug is also more active than mercury in changing the Wassermann reaction from positive to negative. We know that many cases considered cured with mercury and thought to be immune, now give positive blood tests, showing they are still syphilitic. We believe the use of salvarsan materially shortens the course of treatment, thereby making possible an earlier marriage and healthy children.

Desirous of improving his invention, Ehrlich continued his experiments and the 914th combination is sold under the name of neosalvarsan. It is supposed to be less toxic and makes a neutral solution ready for use by simply dissolving in sterile water at room temperature and is said to oxidize quicker than the old preparation. It is much less irritating to the tissues in case of extravasation and has no apparent effect on the lining of the veins. The same vein can be injected over and over, which was not always possible with the old preparation. It requires .9 gm. of neosalvarsan to equal .6 gm. of salvarsan. On account of the greater ease of preparation, neo possesses a distinct advantage. Moreover, patients are less likely to have reaction following the injection, and when it does occur is usually several hours later than with salvarsan.

Is there any material difference in the therapeutic effect of the two preparations? Fordyce thinks neosalvarsan less efficient than an equivalent dose of salvarsan and also that it is more likely to produce skin eruptions. The latter has not been our experience. Ravogli believes one injection of salvarsan equal to two or three injections of neosalvarsan. He has also seen fewer toxic symptoms after its use. This is not in accord with general opinion. Howard Fox considers the symptomatic action of neosalvarsan is slightly less than salvarsan, while its serologic action is considerably less than the older preparation. However, it is not as disturbing to the vein. Trimble, after careful observation of 300 cases, failed to see much difference in the effect of the two remedies, and the simpler technic and less irritating qualities of the neosalvarsan make it superior to the older preparation. I am inclined to coincide with Trimble's conclusion.

Whitehouse found that in all cases of syphilis of the skin or mucous membrane, whether primary, secondary or tertiary, the lesions healed as promptly and surely after neo as after salvarsan. With this I am in perfect accord. Serologically he found both more effective in primary and secondary than in tertiary cases. However, he obtained 20% more permanently negative Wassermanns from the use of salvarsan. None of these cases received combined treatment with mercury. Schamberg has used an intra-gluteal injection of .1 gm. salvarsan or .15 gm. neo weekly to supplement intravenous injections of salvarsan or intramuscular injections of gray oil. The salvarsan is suspended in 1 or 1½ c.c. of sterilized petroleum oil with a half minim of beechwood creosote. This can be put up in ampules and used like gray oil.

Salvarsan is responsible for a relatively small number of deaths. Some of the fatalities occurring after its use should not be charged to it. I refer to cases where the drug was employed as a last resort, the patient being past all reasonable chance of help and dying in spite of the drug—not on account of it. In April, 1913, Finger stated that 142 deaths had been reported. At autopsy many of the fatal cases have shown a hemorrhagic encephalitis, acute nephritis or enteritis causing death within a few days. Finger also cites 34 cases of encephalitis, of which 9 recovered. He states that these cases are due to the toxic action of salvarsan as confirmed by experimental research. When one considers the vast number of injections that have been given during the past three and a half years, many by men who have been syphilographers only during that same period, the wonder is that fatalities have been so few. With ordinary care in selecting cases the administration of salvarsan should carry about the same or less risk than chloroform anesthesia. There have been no deaths from the drug among our patients, nor have I seen a reaction I would not endure were I in the same condition. A very few patients have felt faint or experienced a sense of discomfort about the chest during the injection, symptoms suggesting mild anaphylaxis. These manifestations have lasted from a few seconds to a few minutes. In no case which showed these symptoms was there a possibility of the introduction of air. A neurotic young woman, syphilitic ten years, had received two intravenous injections of salvarsan with no particular reaction; when about half through the third injection she complained of smarting of her right eye and thought the nurse had held smelling salts too near. Soon there

was evident edema, first of the under, then the upper lid and conjunctiva, followed by the same condition in the left eye; and chemosis became so great as to entirely cover the iris. Dr. Quackenboss saw her at the time and found no changes in the fundus. The swelling disappeared under cold compresses and was evidently a neurotic edema.

Reactions are more frequent in nervously sensitive persons, patients in the florid stage and those who have not taken mercury. Occasionally transient erythematous rashes occur upon the skin, probably of arsenical origin. Existing syphilitic eruptions not infrequently become brighter soon after an injection of salvarsan. This is the so-called Herxheimer reaction and occurs most often in florid cases, supposed to be due to the slaughter of large numbers of spirochetes and consequent rapid liberation of endo-toxines. Chills, fever, nausea, vomiting, diarrhea, etc., that sometimes follow the injection have been laid to the use of aged water in preparing the solution. We use only water both freshly distilled and sterilized, but still see an occasional reaction. Last year we kept sterile saline solution at room temperature from March to December, and Dr. Bell of Prof. Folin's laboratory reported neither bacterial nor chemical change.

The early contra-indications were heart and kidney disease, optic atrophy and general weakness. We have given salvarsan in valvular heart disease many times, modifying the dose to suit the patient. There have been a number of cases of syphilitic aortitis and myocarditis treated, with no untoward results and some have shown a decided improvement. A nephritis, unless it be of syphilitic origin, should still be looked upon as a contra-indication. Corlett has recorded a case of acute arsenic poisoning which he ascribes to faulty elimination. The patient showed nothing after the first injection of .6 gm. The following week he received .9 gm, and three days later returned with typical symptoms of arsenical poisoning and subsequently had paralysis of the bladder, rectum and lower extremities lasting four months. The patient's weight is not given. It is our practice to graduate the dose according to weight.

What are the dangers to the cranial nerves?

For a year and a half we have had a routine examination of the eyes of all patients at the Dispensary before the administration of salvarsan and a record kept of refractive errors and fundus changes. From July 1, 1912, to July 1, 1913, 606 injections were given and 4 cases showed the same subsequent changes, *i.e.* vitrious opacities and a neuro-retino-choroiditis. In these cases only one eye was affected, whereas after atoxyl both were involved, and total blindness followed a second injection, while our cases that have received subsequent salvarsan treatment promptly, have improved without exception. Dr. McAdams, who has examined many of the cases for us is convinced the changes were due to the disease and not to arsenic. Furthermore, since the treatment has been more energetic none of these accidents have occurred. Fordyce has lost all fear of salvarsan having any predilection for the optic nerve. Moreover, he has used the drug in several cases of optic neuritis with benefit. We have had the same result. He cites a case of advanced optic atrophy where ten injections of salvarsan had been given with marked improvement in vision and enlargement of the visual field. We, also, have given the drug in a few cases of optic atrophy with no untoward results.

Ruggles reports a girl of 22 with almost complete loss of vision in both eyes following iritis and optic neuritis. Her sight became normal after the fourth injection of salvarsan.

In talking with several ophthalmologists I have yet to learn of a single instance where salvarsan has caused trouble with the optic nerve.

In regard to the auditory nerve, Fordyce states that no cases of auditory neuritis have occurred in his practice, but he has seen several cases of involvement of the auditory apparatus in secondary syphilis where no salvarsan had been given. Ravogli has seen two cases of deafness, both of which he believed due to the disease and not to the treatment. At the dispensary we have had no routine examination of the ears. That sudden deafness due to syphilis occasionally occurs during the secondary stage of the disease was well known before the advent of salvarsan. In 1897 Dr. E. A. Crockett of this society collected and reported between fifteen and twenty cases of this character, one of which came on without treatment and one while under energetic mercurial and iodide treatment, deafness being due to a specific labyrinthitis. Two of the cases he reported occurred in my practice. Both were early secondary cases and both recovered practically normal hearing under pilocarpine and energetic mercurial treatment. The onset was sudden and total deafness followed, rapidly accompanied by tinnitus, virtigo, and temporary facial paralysis.

The symptoms and conditions are almost identical with the cases that have occurred after salvarsan. During the past three years I have seen three cases of deafness, two in my own practice and one a patient of Dr. Post. One of my patients does not properly belong in this group, as his disease was contracted in 1905 or 1906. His last 606 was in November, 1912. Wassermann Test was negative in February and again just before his deafness came on in April of this year. He now tells us of getting an electric shock from a telephone receiver a day or two before the deafness came on. His hearing is gradually improving. The Wassermann test in October, 1913, was still negative. The other two cases occurred within six months of infection. One remained unilateral, the other came first in one ear, then in the other. Both had a labyrinthitis and both a temporary facial paralysis. I believe now that both should have received en-

ergetic salvarsan treatment at once. Dr. Post's patient had one injection of salvarsan, while mine had two injections of neosalvarsan a month apart. There have been other cases in this city of the same sort, undoubtedly due to the disease. It is the general belief that the neuro-recurrences or nervous relapses are due to the syphilitic process in a very large proportion of the cases,—if not all.

However, Finger believes some are due to arsenical polyneuritis. He claims the tardy neuro-recurrences have an incubation period of two or three months and occur almost invariably in patients who have been treated with salvarsan at the end of the primary or early in the secondary period, when the system is flooded with spirochetes. He thinks it plausible to assume that the spirochaetes are then leading a saprophytic existence on the meninges and doing no harm until the toxic action of salvarsan is felt, especially on the capillaries. With normal resistance thus reduced, the spirochaetes can exert their malign influence on the tissues. Insufficient treatment thus favors the neuro-recurrences, but energetic combined treatment may not absolutely prevent them.

It is claimed that arsenic from intravenous injections is not found in the cerebro-spinal fluid, therefore it cannot be relied upon to accomplish as much in syphilis of the brain and cord as intra-spinous injections, according to the experience of Flexner in his work on meningitis. Salvarsan, even in weak solutions, cannot be injected into the canal. The work of Noguchi in demonstrating spirochaetes in the brain tissue of paretics and the successful inoculation of rabbits with the cerebro-spinal fluid from tabetics, shows conclusively that to be effective the spirillicide must reach the spinal canal. Work has been going on along this line for some time, using the salvarsanized serum injected into the canal; usually the patient's own serum is utilized. Improvement, both as regards clinical symptoms and laboratory tests, have generally, or often, followed the employment of this method. Whether it will be possible permanently to arrest the progress of syphilitic disease of the nervous system by this means, time alone will tell.

Conclusions:—

1. The early hope of curing syphilis with a single massive injection of salvarsan has not been realized.

2. It is a potent remedy in healing all manifestations on the skin or mucous membranes.

3. It is more efficacious than mercury in changing a positive to a negative Wassermann reaction.

4. Its prompt action on early moist lesions has a decided effect in limiting the spread of contagion.

5. The early fears of damage to the cranial nerves appear to be groundless.

6. When given in proper amounts at proper intervals it is practically devoid of danger.

Clinical Department.

A CASE OF STRANGULATED RETRO-PERITONEAL HERNIA OF THE SMALL INTESTINE INTO THE PARA-DUODENAL FOSSA.

BY LINCOLN DAVIS, M.D., BOSTON,

Assistant Visiting Surgeon, Massachusetts General Hospital.

ABOUT midnight of July 14, 1913, I saw, in consultation with Dr. M. Sturnick of Dorchester, a man presenting the symptoms of acute intestinal obstruction. The provisional diagnosis of volvulus was made, and he was recommended for immediate admission to the Massachusetts General Hospital. He entered the accident department of the hospital at 2.40 a. m., July 15, 1913, Hospital No. 190151. The following history is taken largely from the hospital records:

B. V. Age 48. Married. Born in Russia. Tinsmith. Entered Massachusetts General Hospital, July 15, 1913, at 2.40 A. M.

P. H. Has always been well except for one attack six years ago of acute abdominal pain with vomiting, lasting six days. Has been troubled with gas in stomach and discomfort two to three hours after eating, since then. Relieved by soda bicarbonate. Bowels regular. Micturition normal.

P. I. At 3 P. M. yesterday began to have pain in region of umbilicus. Had eaten canned salmon two hours before, and thought it indigestible. Pain severe at onset but soon became less severe for a short time. Vomited several times. Bowels moved normally yesterday morning. Small loose movement one and a half hours after onset of attack. For last few hours pain has increased in severity and become continuous. No result from low enemata. Morphia and atropin given by patient's physician. Temperature 97.6. Pulse 88. Respiration 22.

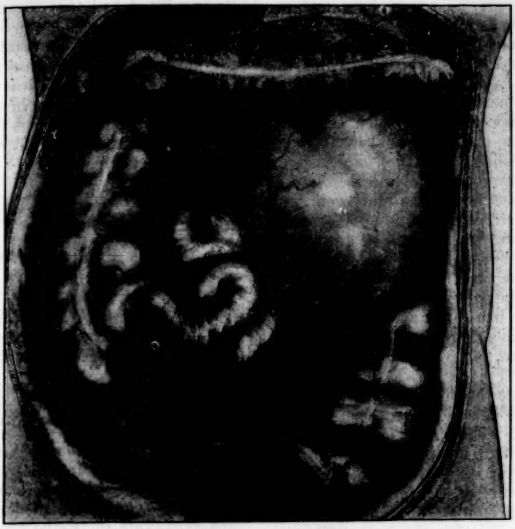
P. E. Well-developed and nourished man in considerable pain. Pupils normal. No adenopathy. Throat negative. Tongue, moist white coat. Heart and lungs nothing abnormal made out.

Abdomen full, markedly distended and tense, loud tympany throughout. No dullness or signs of fluid. Board-like rigidity of whole left side of abdomen. Spasm somewhat less on right. Moderate general tenderness, most marked to left of umbilicus. Pressure on left side of umbilicus causes pain referred to region of umbilicus. No costovertebral tenderness.

Rectal Examination. Rectum balooned. No tenderness. Extremities and reflexes normal. No herniae. Leucocyte count, 20,500.

Patient sent to ward, and given high M. G. W. enema without result. Patient's condition at this time became rapidly worse and operation was decided upon without further delay.

Operation. Four-inch median abdominal incision below umbilicus, discloses bulging retroperitoneal tumor, size of a football lying mostly to the left of the median line, extending into flank and up to epi-



gastrium. Transverse colon passed across upper portion of mass. Incision enlarged above umbilicus. Parietal peritoneum incised with escape of considerable turbid, bloody fluid. Trocar was then inserted, entered a loop of bowel, drawing off a little gas. The incision in the posterior parietal peritoneum was then enlarged and a large mass of distended, plum-colored small intestine delivered. Trocar wound in intestine closed with double layer of linen sutures. After a puzzling search, the point where the ileum emerged from the retroperitoneal pouch was found. This was close to the point where the duodenum emerges from under the mesocolon (fossa duodeno-jejunalis) leading to left. Large vessels passed over this opening, probably inferior mesenteric vein. The bowel was found adherent to the edge of the opening, these adhesions were freed. At this point the bowel wall was thickened, deep red in color, but distinctly viable. This part of the bowel was about one to two feet from the ileocecal valve. This short distal portion was collapsed and empty. All the remainder of the ileum and the entire jejunum lay in the hernia sac. With considerable difficulty, inch by inch, the herniated intestine was pulled through the opening, the last portion being difficult on account of distention. The hernial ring could not be enlarged on account of large mesenteric vessels which ran close to its edge. No attempt made to close hernial opening on account of alarming condition of patient. Intestine pressed back into peritoneal cavity with difficulty and abdominal wall closed with through-and-through sutures of s. w. g. Dry dressing. Skultitis. Patient to Ward D. in poor condition.

Patient failed to respond to stimulation and died at 9.10 A. M. No autopsy.

The above case, on account of its rarity and very serious import, is worthy of record.

Moynihan has published a monograph on the subject of retroperitoneal hernia, giving a very complete history of the subject, with full reference to the literature. He describes nine fossae in relation to the duodenum.

1. Superior Duodenal Fossa.
2. Inferior Duodenal Fossa (Fossa of Treitz).
3. Para-duodenal Fossa (Fossa of Landzert).
4. Mesenterico-parietal Fossa (Fossa of Waldeyer).
5. Mesocolic Fossa.
6. Posterior Duodenal Fossa.
7. Duodeno-jejunal Fossa.
8. Inter-mesocolic Fossa.
9. Infra-duodenal Fossa.

The first five are the commoner fossae, the last four being very unusual.

As to the origin of folds and fossae, Moynihan sustains the view of Treitz, that they are traction folds, the result of dragging of the intestines in the developmental change of position.

In this case the fossa involved seems to correspond to the description of the para-duodenal fossa, or fossa of Landzert. The opening of this fossa is bounded in front by the plica venosa, which consists of the inferior mesenteric vein arching over to join the splenic vein. It is usually accompanied by the left colic artery. The accompanying illustration is a diagrammatic representation of the appearance of the mass upon opening the abdominal cavity.

Moynihan records 65 cases of left duodenal hernia and 17 cases of right duodenal hernia. These herniae are found at all periods of life, the youngest is that of a case recorded by Brösieke, in which the patient was fourteen days

old. Moynihan concludes that the hernia is often congenital.

Under favorable circumstances it is possible to make a probable diagnosis during life. Leichtenstern says: "The circumscribed globular distention of the mesogastrium with retraction of the region corresponding to the colon; the firm, elastic, spherical lump which can be distinctly felt when the abdominal wall is thin, giving the impression of a large, somewhat movable cyst and extending from the mesogastrium to the left; the peculiarity that this well defined tumor always yields a sonorous note on percussion and clear intestinal sounds on auscultation, also the presence of hemorrhoids and the loss of blood from the rectum in consequence of the compression of the inferior mesenteric vein, permit, when taken in connection with the subjective troubles indicating chronic disease of the abdominal organs, a probable diagnosis to be made."

Again to quote Moynihan: "So far as the symptoms of the hernia are concerned there is little to be said. They may be slight or they may be the sudden symptoms of acute intestinal obstruction which swiftly strike the patient down. In a number of carefully recorded cases, the history of chronic slight digestive or intestinal troubles is usually obtained. The treatment is operative. A number of successful cases have been recorded, namely, by Sonnenberg, Tubby, Priestly Leach, Narth, Habern, Lawford Knaggs, McArthur and Sherren in left duodenal hernia, and Neumann in right duodenal hernia.

"In the majority of cases the mass of the intestines was easily withdrawn from the hernial sac. That this is possible is fortunate, as the neck of the sac cannot be enlarged without dividing the inferior mesenteric vein. This, of course, is out of the question."

Moynihan says that "If the strangulated gut can be drawn out of the sac, the sac should be opened through an incision on the outer side of the vein, the intestines withdrawn, incised in one or more places and emptied of its contents. The incision in the gut must be closed with sutures. It would then be a very easy matter to replace the emptied coils of the intestines and withdraw them through the neck of the hernia. It is desirable to close the neck of the sac by sutures after the hernia is reduced. This is sometimes very difficult."

In reviewing this case it is evident that the correct preoperative diagnosis should have been made, as all the signs of intestinal obstruction were present, together with a distinct globular, tympanitic, tender tumor, lying to the left of the median line, high in the abdomen, as described by Leichtenstern.

As to the treatment, the earlier operation is resorted to the better. The manipulation necessary to reduce a considerable length of incarcerated intestine is necessarilly productive of shock. Multiple punctures of the distended coils I believe would greatly facilitate the procedure. Personally, I feel that in another case I should know where to look for the orifice of the sac, and thus be able to save considerable time. When the mesenteric vessels pass close to the edge of the neck of the sac, as was the case in this instance, its division is, of course, out of the question. The condition is always a very serious one and when strangulated will necessarily carry a high mortality.

Medical Progress.

REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

TREPONEMA PALLIDUM IN THE BRAIN IN CASES OF GENERAL PARALYSIS.

THE fact of this recent discovery is already well known, the particulars are as follows:

Noguchi and Moore[1] examined seventy paretic brains, and succeeded in finding the Spirochaeta pallida in twelve cases. The area chosen for examination was usually specimens of brain tissue from the right frontal sphere, but occasionally from the left hemisphere. The twelve positive cases were clinically undoubted cases of general paresis, but of a rapid course. The longest in duration lived only thirty months. The post-mortem appearance, both macroscopical and histological, were the typical lesions constantly associated with general paralysis. No softening, gummata, or marked endarteritis were found. Ten were men, two were women, and five cases were of the tabetic type. The method used for staining was a modified Levaditi silver method, the technique of which the authors do not give. The spirochaetes were found in all layers of the cortex except the outer layer: occasionally they were found subcortically, they were never demonstrated in the vessel sheath, and did not have any particular relationship to the vessels; in the pia no spirochaetes were found. Noguchi and Moore found no ratio between the numbers of spirochaetes and the severity of the paresis, although in one case in which they were most numerous the paretic changes were very marked. They conceive it is possible that the spirochaetes will be found more readily in cases which run a fairly rapid course.

THE SPIROCHAETA PALLIDA IN THE BLOOD OF GENERAL PARALYTICS.

Levaditi[2] has undertaken the investigation of the question whether syphilitic infection in general paralytics is limited to the brain or if it is diffused through the blood and the various organs with accidental localization in the cere-

bral cortex. On November 10, 1913, he read before the Académie des Sciences the results of his researches in collaboration with Dr. Danulesco. The blood of a general paralytic at the third stage, syphilitic fifteen years, was inoculated into the scrotum of a rabbit; at the end of 127 days there was a bilateral scrotal lesion. Ultramicroscopic examination showed many characteristic mobile spirochaetes. The striking feature is the persistence of the parasite in the blood long after the beginning of syphilis—fifteen years. Levaditi and Donulesco had had only one positive result in six trials (five paralytics and one tabetic). It seems, then, that the germ does not exist constantly in the general circulation. Perhaps it appears there only intermittently during the phases which precede or accompany the cerebral manifestations.

GENERAL PARALYSIS WITHOUT REACTION OF THE CEREBRO-SPINAL FLUID.

Demole[3] reports a pronounced case of general paralysis in a man of 44 in which there was a uniform absence of any alteration in the cerebro-spinal fluid. The prodromal symptoms were of six years duration and the probable date of syphilitic infection very much earlier. Apoplectiform attacks, twitching of the facial muscles, unequal and sluggish pupils, exaggerated knee-jerk, extreme affective indifference and intellectual deterioration marked the beginning of his stay in the hospital early in 1913. The disease rapidly progressed, pronounced and characteristic ideas of self-importance, grandeur and wealth predominated and he became absolutely disoriented for time and place. His speech became slow, stammering, slurring and explosive, his handwriting shaky, slovenly and sometimes illegible. The pupillary changes became more marked, his memory defect evident and the fibrillary tremor of the tongue extreme.

Three lumbar punctures were made at intervals of a month with practically the same result in each instance. The cerebro-spinal fluid was invariably clear and crystalline and the tension high. The globulin on the first two punctures was double and on the last less than one-half the normal limit by the Nonne Apelt method and the Szcesi tube—Lymphocytes: 1.9 to 0.5 c.mm. and only faint traces of opalescence on boiling. At each test the Wassermann of the cerebro-spinal fluid was negative and that of the blood was uniformly and strongly positive. During the period covered by the punctures the disease progressed rapidly. Errors of technique are shown to be plainly excluded and the cerebro-spinal fluids of the other general paralytics examined at the same time by the same method and the same solutions gave unmistakably positive results. He regards these paradoxical findings in general paralysis as on a par with examples of the appearance and disappearance of the Wassermann in the course of syphilis, variations formerly considered by some as vital discrepancies the true significance and value of which we only today know how to properly appreciate.

TREATMENT OF GENERAL PARALYSIS BY INTRA-SPINAL INJECTIONS.

Flexner[4] writing on the local specific therapy of infections notes the fact long regarded as notable that notwithstanding the origin of tabes and paresis from syphilitic infection those diseases respond so little favorably to antisyphilitic measures of treatment. Partly for this reason and partly because of the characters of the pathologic changes, they have been separated off from the typical varieties of syphilis and placed in a special category of metasyphilitic or parasyphilitic affections, so called. Now that the *Spirochaeta pallida* has been shown by Noguchi to occur in numbers in the brains of paretics and has never been found in the spinal cord of tabetics, this classification calls for complete revision.

In the meantime how is the disparity in therapeutic response of these affections to be explained? First, there is growing evidence that salvarsan, injected into the blood, may exert a beneficial influence in tabes, but not in paresis. The evidence is derived partly from clinical improvement and partly from the reductions in the cellular and protein contents of the cerebrospinal fluid, and the diminution of the Wassermann reaction. These changes are in accord with the inconstant and fleeting presence of arsenic in the fluid following the intravenous, but not the intramuscular, injection of the drug. Hence it would appear probable that better results might be accomplished provided the drug could be brought with certainty and in suitable concentration into this fluid. Such a method of application, worked out by Swift and Ellis, offers considerable promise of high therapeutic value.

The lesions of the spinal cord in tabes and the clinical symptoms are dominated by pathologic states of the meninges. It is known that in most cases of the disease the cerebrospinal liquid contains the products of irritative or inflammatory conditions existing within the membranes; and microscopic study has revealed areas of chronic meningitis about the radicular portions of the spinal and corresponding portions of cranial nerves. To reach the pathologic processes in the membranes, not in tabes only but in paresis as well, is peculiarly difficult because not only do we have to reckon with the ordinary conditions of impenetrability of the meninges, but there often coexists also an obliterative arteritis of syphilitic origin.

It is not safe to introduce salvarsan directly into the subarachnoid space, and while neosalvarsan, because of its ready solubility, is less injurious, yet the direct injection of that drug is attended with certain risks. Swift and Ellis have taken advantage of the circumstance

that the blood of salvarsan-treated tabetic patients is itself curative, and they have employed the corresponding serum, suitably diluted, for intraspinous injection. The results are both promising and striking. The local irritative condition in the meninges becomes quickly diminished, the Wassermann reaction reduced or abolished and the clinical state of the patient improved. These effects follow even when the salvarsanized blood of other persons is employed for intraspinal injection. They are due, therefore, to the local and not to general treatment.

Nothing less than a careful and thorough trial can determine the applicability of this method to the treatment of paresis. Certain theoretical facts, however, stand well in the foreground. It is known for example, that the cerebrospinal liquid provides a means of direct and immediate contact with the structural tissues of the brain. Whatever chemical is introduced into this liquid will inevitably find its way to the supporting elements, the nerve-cells and fibres of the cortex in which the main lesions of paresis are situated. It is in the cortex likewise that the *Spirochaeta pallida* has now been found, from which it follows that this organism can be best brought under the influence of curative agents through the same channel of communication.

Prediction as to whether or not a direct specific treatment will accomplish the eradication of the spirochaetes in paresis is hazardous for the reason that it remains still to be ascertained whether the spirochaetes which have persisted in the brain are normal or resistant strains. Their persistence for so long a period and resistance to the ordinary healing drugs may, conceivably, be due not alone or wholly to their inaccessibility, but also, more or less, to the acquisition of a state of fastness which, if present, may prove difficult to overcome.

The anatomic conditions existing in paresis are comparable to those occurring in sleeping-sickness and poliomyelitis. In all three diseases numbers of lymphoid cells accumulate within the perivascular lymphatic spaces and degenerations occur in the nerve-cells. Just as the spirochaetes occupy in the cortex in paresis and the trypanosomes in sleeping-sickness, so does the virus of poliomyelitis reside in the tissues of the spinal cord and brain. We have already learned that *Trypanosoma gambiense* can be suppressed by drugs in the blood and lymph-vessels without being destroyed in the central nervous organs, and the virus of poliomyelitis prevented from developing through intraspinous injections of an immune serum that is without effect when introduced to the blood. From this it follows that a local mode of specific treatment offers certain advantages either in theory or in fact not held out in the same degree, at least, by the general method. So far as Flexner is aware local specific treatment has not yet been tested in either paresis or sleeping-sickness. To the former it doubtless will soon be applied; in the latter it should also be tried.

Myerson in addition to his statistical report of the results obtained by him in eight cases by the Swift-Ellis treatment in general paresis embodied in the anniversary report of the Psychopathic Hospital[5] adds the following, which summarizes his remarks in the discussion of this method of treatment at the Boston Medical Library, December 17, 1913. The Swift-Ellis method of intradural injections of salvarsanized serum influences the course of general paresis, as manifested in the changed biological reactions. It does not seem permanently to stay the disease process. Probably this is due to the fact that the lesions of paresis lie outside of the range of the spinal fluid. It is a fundamental fallacy of this treatment in that it supposes the spinal fluid to be an afferent route in relation to the nervous system although it really is an efferent route. If we are to cope successfully with general paresis we must learn to distinguish the pre-paretic stage. The work of William W. Graves, as embodied in the paper: "The Syphilitic Syndrome," (New York Medical Record, August, 1912), and careful serological and spinal fluid examinations in chronic syphilitics presenting any neurasthenic symptoms will help us to distinguish this stage.

Robertson[6] (Geo. M.) raises the question whether we are justified in pushing this antisyphilitic treatment to the extreme. Desperate cases call for desperate remedies, and surgeons operate under conditions in which a definite percentage of their cases are certain to die from the immediate results of the operation, feeling their action justified if the lives of the majority are saved. General paralysis is as desperate a disease as any cancer, for 50 per cent. of those suffering from it die in one year, 75 per cent. in two years and 90 per cent. in three years, and the existence of the few who survive this period is a living death. Are the ethics of the surgeon and physician so different that a principle of the former cannot be followed by the latter under circumstances as hopeless and desperate? Are physicians, then, justified in general paralysis in pushing salvarsan and mercury to the most extreme limits compatible with survival, in the hope of curing at least a percentage of their cases? No doubt under these circumstances, owing to the amount of salvarsan probably required, like the surgeon, the physician would require to be prepared for a certain percentage of deaths from the drug itself. The time seems ripe for a determined effort on these lines, but the weak point in the advocacy of such a course is the fact that, however hopeful the prospects may seem, no one can assert with confidence that a single case would recover. Syphilis, therefore, should be treated when it is possible to cure it, and seeing that the cause of it is known, an accurate test of its activity exists, and a powerful remedy found for it, it will be a slur in the future on the profession of medicine if the seeds of general paralysis and tabes

are permitted to remain in the human soil till it is too late.

CEREBRAL SYPHILIS.

Henderson[7] in a systematic clinical analysis of 26 personally observed cases of cerebral syphilis, in seven of which the diagnosis was confirmed by autopsy finds that cerebral syphilis plays an important part in the production of mental disease, and should occupy a more prominent place among the organic psychoses than it heretofore has done. The spirochaeta pallida has for long been surmised to be the causal organism, but it was not until 1910 that Strasmann first demonstrated its presence in the central nervous system of an adult with acquired syphilis. Trauma, alcoholism, and physical and mental strain are important contributory factors. Re-infection with syphilis is quite possible, provided the initial infection has been thoroughly cured. Anatomically, three main types of cerebral syphilis are differentiated; viz. meningitis, endarteritis, and gumma. Clinically, this differentiation is seldom possible, and is without practical value, as the treatment is the same in all irrespective of the type.

The majority of cases of cerebral syphilis develop within the first three years after primary infection, and rarely more than ten years after infection. This is in striking contrast to cases of general paralysis and locomotor ataxia, which almost invariably develop at a period more than ten years after infection.

In regard to the physical signs, the Argyll-Robertson phenomenon is the one on which most weight should be laid in differential diagnosis, as it is rarely present in cases of cerebral syphilis. Other important features are: (a) an acute onset with headache, dizziness, and vomiting; (b) cranial nerve palsies; (c) convulsions without loss of consciousness, but usually followed by permanent focal symptoms; (d) intactness of speech and writing; (e) absence of facial tremor. Cerebral syphilis not infrequently causes pseudo-bulbar paralysis, and six cases of this affection have been here reported. The mental symptoms of cerebral syphilis are of the nature of those seen in acute organic reactions, and consist of confusion, delirium, amnesia, hallucinations, retention defect, and a poor memory for recent events; in addition there is relatively little disintegration of the personality. The Wassermann reaction must be considered in relation with the clinical picture in each individual case; when the Wassermann reaction with the cerebro-spinal fluid is negative, the diagnosis of cerebral syphilis is indicated. It is frankly admitted that there is no pathognomonic sign for cerebral syphilis; but if the nature and character of the onset and the above-mentioned physical and mental symptoms and signs are correlated, a disease entity is formed which has every right to be considered characteristic. Anomalous features, among which may be mentioned euphoria and grandiose ideas, and confabulatory states, are more common in cerebral syphilis than is generally recognized; special attention must be paid to the setting in which these features occur, because when occurring in a setting of confusion they mean practically nothing. Recent statistics confirm one in the opinion that the prognosis of cerebral syphilis, as compared with other organic affections of the nervous system, is relatively good; the most favorable cases are those of a meningitic or gummatous type. Mercury, no matter in what form administered, is an exceedingly valuable drug in the treatment of syphilis, provided that it is given in a systematic way. The best results are, however, probably obtained by combining mercurial and salvarsan treatment. Potassium iodide acts simply as an eliminative agent, and has no specific action on the spirochaete pallida.

Ravout[8] reports three cases of syphilis of the nervous system in which intraspinous injections were employed. The first case was a woman with secondary syphilis suffering from headaches. She received two drops of a solution containing one-tenth of a milligramme of bichloride of mercury directly injected into the cerebro-spinal canal. The immediate result of this showed itself in a few minutes by an exacerbation of all her previous symptoms, but at the end of three days there was a marked amelioration. Unfortunately this woman was lost sight of, but she served to demonstrate the fact that mercury could be injected directly in the cerebro-spinal canal. The second case was again a female, and she was kept under observation for four years. The chief symptoms were headache, unequal pupils with lack of light reaction, and a partial paralysis for accommodation on the same side. The injection of two minims of a 1+ solution of cyanide of mercruy was given, and the patient had, as a result, a gradually ascending contracture of all the muscles of the body until she was in a state of trismus. This condition lasted fifteen minutes. Four months later, though the headache was much improved, the eye conditions were not good, and a single drop of the former solution was injected. There was again some contractures of the muscles, but only slight. A week later the pupils were equal, but the light reaction was still sluggish. The patient was subsequently treated with salvarsan intravenously. The last case was one of well-advanced cerebral trouble with loss of memory, headache, and an affected gait. Salvarsan was first used intravenously and repeatedly. The symptoms, though at first improved, later recurred, and at the end of ten months the patient's condition was as bad as ever. It was then decided to inject neosalvarsan directly into the cerebro-spinal canal, and this was done and subsequently repeated. The patient's condition improved, but there still remained a certain amount of pain in the feet and a general weakness in walking. The Was-

sermann reaction was changed from a positive to a negative reaction.

ATTEMPTED SUICIDE.

East[9] in an exhaustive inquiry based on a study of 1000 consecutive cases of prisoners charged with attempted suicide concludes that it is an advantage to retain attempted suicide as a misdemeanor. Attempted suicide and suicide are both adversely affected by unemployment and drunkenness, the latter possibly causing more attempts than suicides. Both are similarly affected by the seasons, being more frequent in the hot months. Attempted suicide and suicide differ in the time of day in which they most commonly take place, in the age-incidence, and in the methods most frequently adopted; and whereas attempted suicide is only slightly influenced by the civil status, actual suicide is markedly affected. The family history of attempted suicides shows that in 27.10 per cent. there was parental intemperance, insanity in 10.2 per cent., epilepsy in 0.6 per cent. Of the 1000 cases themselves 2.9 per cent. had been previously insane. Probably all these figures are understated. Physical disease is not by itself a common cause of attempted suicide but at least in France, actual suicide appears to be frequently due to physical suffering. The commonest cause of attempts at suicide are alcoholism, unemployment and destitution, insanity, domestic troubles, morbid mental states not amounting to insanity, and attempts made for an ulterior purpose. Frequently more than one cause exists at the same time. When an alcoholic impulse acts alone in causing an attempt it is more often amnesic, when acting with other causes memory is usually retained. Alcohol incites attempts from impulse, post alcoholic depression, weak-mindedness, and insanity. An attempt during a first intoxication is very rare. In 39.3 per cent. of the cases alcohol was found to be wholly or partially the cause of the attempt. Unemployment is more likely to cause an attempt than destitution. Physical exhaustion is an important contributory cause in these two conditions. Of persons who are charged with committing crime, those whose offence was against the person more frequently attempted suicide than those whose offence was against property. In the weak-minded the attempt may result from very trivial causes, but the reverse not infrequently holds good. Insanity is more likely to cause suicide than attempts at suicide. In the latter 14.1 per cent. were due to this cause, the commonest forms of insanity being states of mental depression and then alcoholic insanities.

PERSONALITY AND OUTCOME IN CASES OF MENTAL DISEASES.

Bond[10] gives four tables showing personalities (or natural mental make-up) and outcome in 200 consecutive cases.

Seventy-four per cent. of these are found described as normal, 26 per cent. as abnormal; 19 per cent. as social, 11 per cent, as seclusive.

Dementia praecox is seen to differ sharply from manic-depressive, alcoholic, post-syphilitic and involution period psychoses in regard to the personalities in which it is found.

Normal personalities are noted in 93 to 85 per cent. of manic-depressive, alcoholic, paretic and involution period psychoses; but in only 29 per cent. of dementia praecox cases.

Seclusive personalities are noted in less than 4 per cent. of manic-depressive, alcoholic, paretic and involutional period psychoses, but in 50 per cent. of dementia praecox cases.

As regards hospital residence only 2½ per cent. of the social cases, in contrast to 50 per cent. of those who showed a seclusive tendency, are still in the hospital at the end of a four-years interval.

GYNECOLOGIC DISEASE IN THE INSANE.

Taussig[11] has examined 537 out of about 900 inmates of the St. Louis City Sanitarium, and found 252 to have some lesion in the pelvic organs sufficient to cause symptoms at present or in the future. These lesions are recorded: 87 suffered from retroversion and 52 from a relaxed pelvic floor. It seems probable that gynecological disease is only slightly more common in insane women than in the sane. In senile dementia, terminal dementia, and paranoia, only about one-third were diseased, in dementia praecox about one-half; among the imbeciles about two-thirds. In the manic depressive group about 74 per cent. showed gynecological lesions, and a large proportion of these showed a chronic inflammatory condition of the genital tract. The number of recoveries from this form of insanity after gynecological operations is so large that when a definite lesion is found it should always be corrected by local or operative measures.

BLOOD-PRESSURE IN THE INSANE.

Sagini[12] who has investigated the blood-pressure of 38 women and 33 men aged from 30 years upwards, suffering from various forms of mental disease, with Riva-Rocci's sphygmomanometer, comes to the following conclusions: There is no constant relation between the number of pulse beats and the degree of blood-pressure. In all mental diseases advanced age determines a rise of blood-pressure. In all mental diseases the curve of blood-pressure in the right arm is a little higher than that in the left. Occasional excitement and emotion of a certain degree is followed by a rapid rise of pressure without a corresponding variation in the pulse. In every form of mental disease food always causes a fall of blood-pressure. The mean blood-pressure of epileptics is lower than that found usually in normal individuals. Their pressure

varies, but never reaches a stage of hypertension, even in the period which precedes or follows the fit. It cannot be affirmed that a definite relation exists between mental conditions and the blood-pressure, nor that constant variations exist in the blood-pressure in relation to every form of mental disease, but there is an obvious tendency to increased pressure in paranoia, alcoholic insanity, and hysteria, and a tendency to low pressure in depressive states.

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Reports of Societies.

NEW ENGLAND OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

A meeting of the New England Otological and Laryngological Society was held at the Massachusetts General Hospital, Tuesday evening, November 18, 1913. The President, DR. GEORGE L. RICHARDS, in the chair.

DR. GEORGE A. WATERMAN, Boston, read a paper on

ELECTRICAL TREATMENT IN TINNITUS.

The normal reaction of an auditory nerve to the galvanic current is best obtained by placing the indifferent pole on the back of the hand, while the testing pole with a small electrode is applied over the mastoid, or just in front of the tragus. When a sufficiently strong current is used with the cathode over the ear, the patient hears a distinct sound with the closing of the current. This sound has varying qualities in different people. It may be a hissing, humming, buzzing or ringing. Sometimes the reaction is elicited with a very modified current; while in some individuals a much stronger current is necessary to produce it. In fact, the current needed may be so strong that symptoms very disagreeable to the patient may result, such as an apparent tipping of surrounding objects, with a sense of giddiness and even faintness. In patients who have a hyperesthesia of the auditory nerve, very little current produces the reaction. Not only the closing of the cathode pole may give rise to the sound, but also the opening of the anode pole may give the same sound, though it is heard less distinctly, while the opening of a cathode and the closing of an anode give no reaction.

In cases where there is a partial degeneration of the auditory nerve, the normal reaction is reversed, that is, the anode pole gives a louder sound than the cathode. This is the so-called reaction of degeneration of the auditory nerve and is analogous to the reaction of degeneration phenomenon seen in disease of the motor nerves, and is, of course, of importance only from the point of view of diagnosis.

I took up the treatment of tinnitus by the use of the galvanic current at the suggestion of Dr. Clarence J. Blake, who described to me his early experience in experimenting with this method, and sent me an article written six or eight years ago, descriptive of good results following the use of the interrupted current applied to the mastoid with the anode pole.

Properly to carry out this treatment, one requires an apparatus that controls the galvanic current with the rheostat, in order that the amount of galvanism given may be graded, and so obviate the unpleasant results which may develop from too sudden an increase in its strength. It is important too, that the apparatus should include a galvanometer in order that the amount of current given may be controlled.

In treating patients I place the indifferent pole on the back of the hand, with a large electrode, and apply the anode pole over the mastoid bone, and then increase the current until the tinnitus ceases. The patient should give his careful attention to the subjective sound in order to determine at just what point it ceases to exist. In some patients a much stronger current is required to stop the tinnitus than in others. In some the cathode may produce this result better than the anode. In many cases neither pole reduces the sound at all. Usually the anode is the effective pole. When the strength necessary to cause the disappearance of the tinnitus is determined, (generally 3 to 6 milliampers,) this strength current is given from three to four minutes, making and breaking the current rhythmically every two seconds, fininshing the treatment by gradually reducing the current to zero by shutting down the rheostat.

As I have said, in many cases the tinnitus is not affected by this treatment. Out of eighty cases in which I have used this method nineteen or twenty have shown improvement in varying degrees. In some the noises have ceased for hours or days; in others the relief has been permanent weeks or months afterwards, as long as the patient was followed; such cases having had from five to ten treatments. In the majority of cases in which improvement was obtained I have written the patient's home physician directions for continuing the treatment. Unfortunately I have not had time to write these patients so I am unable to give absolute statistics as to the permanency of the improvement in all these cases. Dr. Blake and I have intended to compare our notes some time, to see if any definite pathological conditions are especially adapted to the galvanic treatment.

The outlines of a series of cases were given, together with the results produced by the use of galvanism in treatment.

DISCUSSION.

DR. C. J. BLAKE: The original experiments were made forty years ago with an imperfect apparatus. A Stöhrer battery, an ordinary liquid cell battery, the strength of the current being adjusted by means of the slipping of the electrode across a bar, running lengthwise of the battery. It was a very rough adjustment indeed, and one in which it was impossible to get any refinement of application of the remedial current. The experiments made with the Stöhrer battery were, of course, somewhat

hazardous, and having a subjective noise in the left ear, it seemed to me that I was a good subject for test. When this Stöhrer battery arrived, in the latter part of 1870, I proceeded to experiment with it, trying the passage of the current, the anode and cathode, alternating over the mastoids, finding that with an increasing current there was increase in the subjective noise, and with a decreasing current, a decrease in the subjective noise.

Those immediate experiments were terminated by one in which, in consequence of mishandling and sudden interruption of the current, there was a sense of sudden shock by partial unconsciousness lasting for two or three hours, a sense of confusion lasting twenty-four hours, and terminating in a sound sleep. During that period of time, the noise in the left ear was considerably diminished. In further and more guarded experiment with the battery in question upon other subjects, it was found that if the application of the current decreased the circulation sound, it increased the hearing, but the results were not sufficiently satisfactory to make it worth while to continue them beyond a limited period, though they did determine a definite relationship between the galvanic anode, the hearing power and the circulation sound in certain cases. It was a satisfaction to have Dr. Waterman say that he proposed to take up the subject and test the value of this application of the current under a more favorable condition, with a better means of handling it. The first observation, of course, so far as the number of cases in which it was of benefit was concerned, was of very little value, as compared with the observations which he has made, but so far as I remember, the percentage of improvement was just about the same. In two or three cases, with the gross differentiation of current used, there were quite uncomfortable experiences on the part of the patients. In two of the cases, the noises were very considerably increased and the increase in the circulation sound continued in one case for two weeks; in another case for something over a month; in a third, there was not so prolonged an increase of the severity of the circulation sound, but the increase of the circulation sound was accomplished by a general sense of dizziness. There was no distinct vertigo. At any rate, these experiences sufficed to emphasize the statement of the late Dr. Beard that the electric current was a remedy of which it was better to use too little than a little too much.

The treatment which has been followed by Dr. Waterman seems advisable as a test treatment, in cases of severe subjective noises. In 25 per cent., as he has shown, some relief is afforded. Whether that relief is the result of the effect upon the blood vessels and so upon the circulation, the cause of the sound, whether it is the result of the effect induced in the sense centers, or whether it is purely suggestive, is a matter which is still to be determined; and it is to be hoped that Dr. Waterman will continue his investigations.

DR. D. CROSBY GREENE, JR. demonstrated a case of

EPITHELIOMA OF THE VOCAL CORD.

This patient, 41 years old, whom I show you, I operated upon two weeks ago for epithelioma of the right vocal cord, doing the usual operation of thyrotomy. The point of particular interest in this case, which I wish to speak of, is in connection with the after-treatment of the incision. In this case, I put in no sutures at all. I am using no sutures, because in some of my cases where I brought the cartilage together and sewed it tightly, there was a good deal of trouble with emphysema, and also a certain amount of sepsis.

DR. HARRIS P. MOSHER demonstrated a case of

SARCOMA OF THE ETHMOID.

This man, whom I show you, I operated upon a year ago for sarcoma of the ethmoid with involvement of the antrum. Up to the present time, there has been no recurrence and I might say here, it is the only one of this class of cases, that I have operated upon, where there was no recurrence within a year. In operating on this case, I used the Moure incision, and I wish to emphasize this method of operating. By using the Moure incision and method of operating, and by using an electric headlight, I think we are making an advance in the treatment of malignant diseases of the accessory sinuses. Until I tried this method, I was about as skeptical as I think most of my colleagues are, in regard to operating on these cases.*

Dr. Mosher also showed a hook and eye which he had recently removed from the left bronchus of a boy, four years old. The boy had complained of pain in the left side for eleven months. The x-ray showed the position of the foreign body.

DR. C. MORTON SMITH, Boston read a paper on the subject,

HAVE THE EARLY CLAIMS OF SALVARSAN BEEN REALIZED?†

DISCUSSION.

DR. A. C. GETCHELL spoke of two cases in particular where most brilliant results had followed the use of salvarsan. Both were cases of syphilis of the pharynx.

DR. C. R. C. BORDEN related a number of cases of syphilis of the nose and pharynx and of the quick improvement after the use of salvarsan. Dr. Borden was inclined to think that salvarsan should be used preliminary to extensive operations on the nose and accessory sinuses.

DR. S. J. BEACH spoke of two cases. He referred to a case of syphilis of the upper air passages, together with a severe vaso-motor rhinitis; after the use of salvarsan, the symptoms rapidly disappeared. He also called attention to a case of cerebral syphilis associated with severe and sudden deafness. This case cleared up after the use of salvarsan.

DR. F. N. BIGELOW reported two cases of spyhilis of the larynx, in which there was so much infiltration, and dyspnea became so marked that tracheotomy was necessary. The tracheotomy tube was removed after a short time and the cases cleared up under the use of salvarsan.

DR. H. P. ABBOTT reported a case of Vincent's angina, which resisted various treatments until salvarsan was applied locally. Applications were made every few hours and within three days, the throat had entirely cleared.

DR. C. B. FAUNCE mentioned the case of a chauffeur, 24 years old. He saw him a year and a half after the primary infection. He had given four doses of salvarsan at varying intervals. Sudden deafness had come on a month after the first dose had been given. The man is now in the same condition as when he was first seen. There is no improvement in his deafness.

* There has since been a recurrence in this case. Only what is said about this method of operating still holds.

† See page 269.

Book Reviews.

A Text-Book of the Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D. Eleventh edition, thoroughly revised. Octavo of 1335 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

The eleventh edition of this standard text-book has been carefully revised. An excellent index is one of the most valuable features of a very satisfactory book.

Dreams and Myths. A Study in Race Psychology. By Dr. Karl Abraham, Berlin. Translated by William A. White, M.D., Washington. pp. 74. The Journal of Nervous and Mental Disease Publishing Company. 1913.

This brochure is No. 15 of the Nervous and Mental Disease Monograph Series, and embodies Abraham's studies of classical myths and sagas on the basis of the Freudian psychology, with special reference to the well-known dream theory. It is an attempt to prove that the application of Freud's teaching to primitive fantasies, which have become fixed in the various myths and sagas, may serve as the foundation of a new conception of their origin and development. The same objections which have been brought against the sexual psychoanalytic method in general will, no doubt, be raised against the explanation which the author here sets forth, but this makes its presentation none the less worthy of fair and unprejudiced consideration.

Social Work in Hospitals. A Contribution to Progressive Medicine. By Ida M. Cannon, R.N., head worker, Social Service Department, Massachusetts General Hospital. pp. xi-257. New York: Survey Associates, Inc. 1913. Russell Sage Foundation.

This book, dedicated to Dr. Richard C. Cabot, "whose insight, constructive imagination, and fearless pioneer spirit have been the chief factors in starting and bringing to its present status in this country organized hospital social service," is an admirably temperate statement of the relation of social service to hospital administration and efficiency. Miss Cannon, who has had charge of the development of this work at the Massachusetts General Hospital, is peculiarly fitted to speak with authority on the subject, not only from the viewpoint of a wide experience, but also as a leader in the establishment of an effective social service department in a large general hospital of conservative traditions. As stated in the introduction, the object of the book is to offer interpretations of present-day tendencies rather than to dogmatize as to the significance of work accomplished. In this the author has undoubtedly succeeded, and, if for no other reason, the book should be widely read as a judicial statement of what has already been done, and what may be expected in the future. Following a brief introduction, successive chapters take up the beginnings of hospital social service, the hospital background, the various medico-social problems, the basis of treatment, working together, records, organization, workers, and the future of hospital social service. A useful appendix reproduces various "forms" which have been found useful in the tabulation of cases. We cordially commend the book to physicians, and especially to those who may still entertain doubts of the wisdom of the social service movement, and to all others interested in the broader aspects of medical treatment.

Epidemiologic Studies of Acute Anterior Poliomyelitis. By Wade H. Frost. Washington: Government Printing Office. 1913.

This monograph, published under date of October, 1913, as Bulletin No. 90 of the Hygienic Laboratory of the United States Public Health Service, presents an extensive and careful study of three important recent local epidemics of acute poliomyelitis in this country in three successive years, namely, the epidemic in Iowa in 1910, in Cincinnati, Ohio, in 1911, and in Buffalo and Batavia, N. Y., in 1912. The total number of paralytic cases represented in this combined material was 817, of which 475 were investigated. Investigation was also made of 54 abortive and 71 suspected cases. The work is well illustrated with four maps and 34 charts. The attempt has not been made to correlate the epidemics, except by method of study, but each has been treated as an entity. The data and results both make this work a valuable contribution to the epidemiology of poliomyelitis.

Annual Report of the Bureau of Health for the Philippine Islands. By Victor G. Heiser, M.D. Manila: Bureau of Printing. 1913.

This report records the activities of the Philippine Bureau of Health for the fiscal year ended June 30, 1913. These include the usual functions of a public health service, *plus* those involved by the presence of tropical diseases. In addition to the usual sanitary and hygienic subjects of consideration, there is a careful alphabetic review of these diseases, from albinism to yaws. Foremost among the recommendations of the report is that of "a tax upon polished rice in order to discourage its consumption." This consummation, it is devoutly expected, would greatly reduce infant mortality and would save annually many thousands of lives now lost by beriberi. The second half of the volume consists of statistical tables; reports of divisions, district health officers, and boards of examiners; and a series of sixteen excellent full-page illustrative plates.

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MEDICAL LEGISLATION. FEDERAL OR INTERNATIONAL REGULATION OF THE SALE OF BICHLORIDE TABLETS.

THE recent frequency of accidental and suicidal poisoning by tablets containing corrosive sublimate has revived discussion of the need for legislative restriction of the sale and distribution of such tablets. In a recently published interview, Dr. Mark W. Richardson, secretary of the State Board of Health, is reported to have spoken on this subject in part as follows:—

"The intentional swallowing of poison tablets no legislation can prevent. But the public should have all the protection that law can render against the taking of such poisons by accident.

"However, legislation in certain other States would be more important than in Massachusetts, for most of the great drugmaking houses are located in Philadelphia and in Detroit. The ideal solution of the problem is national legislation, affecting all the states, and providing for a protective shape of tablets and packages or bottles containing them, or distinctive colorings, in addition to the labels which most of them bear at the present time. The mercury tablet is of about the same size and has the same feel as various tablets which are harmless, and that makes it dangerous for handling in the dark, when labels count for nothing."

The subject of federal legislation to regulate the sale of bichloride tablets was discussed by Martin I. Wilbert in the weekly report of the United States Public Health Service for Nov. 14, 1913.

After reviewing the statistics of suicides and accidental deaths from scheduled poisons in England and Wales in 1911, the author tabulates a complete series of 27 antiseptic tablets, containing mercuric bichloride, commonly sold in this country.

"Among the many suggestions that have been made to compel uniformity in shape and size of tablets of corrosive mercuric chloride, we have proposals to have them triangular, coffin-shaped, kidney-shaped, and in the shape of a skull, in addition to the various forms already in use."

"Even at the present time there is sufficient legislation, if enforced, to serve as a reasonable safeguard in connection with the sale of corrosive mercuric chloride at retail. No less than thirty-eight States include corrosive sublimate specifically in the laws designed to restrict the sale of poisons, and in but one of the existing laws, that of Utah, are corrosive sublimate tablets exempted from registration in the poison register, otherwise uniformly required for the sale of corrosive sublimate itself. During the present year, three States, Oregon, Nevada, and California, have enacted modified poison laws and specifically enumerate tablets of corrosive sublimate as belonging in 'Schedule A,' drugs, the sale of which is required to be registered in a book provided for that purpose. These several States also specifically enumerate 'antiseptic tablets containing corrosive sublimate,' being so far, the only States recognizing the present-day custom of labeling these very toxic preparations, 'antiseptic tablets.'

"In addition to specific agitation for the proper labeling of all preparations containing poisonous substances, the most promising innovation is the suggestion that a type form of corrosive mercuric chloride tablet or pastille be introduced in the Pharmacopoeia of the United States, with a view of providing adequate safeguards to prevent accidental poisonings. While the suggestions that have been made for this purpose are many and varied, it would appear that, in view of the rapidly growing intercourse between the different countries of the world, it might be desirable to secure international uniformity in regard to preparations of this type. It has been proposed, unless specific and valid objections could be offered, to adopt for inclusion in the Pharmacopoeia of the United States the description of mercuric chloride pastilles included in the German Pharmacopoeia. This latter Pharmacopoeia provides that pastilles of mercuric chloride consist of equal parts of corrosive mercuric chloride and sodium chloride, and requires that the pastilles be colored bright red with aniline dye, have a cylindrical shape, and be twice as long as thick. These tablets or pastilles must be wrapped individually in black paper, bearing the German equivalent of the word poison in white letters. The weight of a tablet must be stated, and the wrapped tablet is to be dispensed only in suitable glass bottles or tubes.

"As an argument for including in the Pharmacopoeia of the United States an official tablet of corrosive mercuric chloride, rather than enacting legislation to compel uniformity in the shape, size, color, and odor of all tablets containing corrosive mercuric chloride, it has been pointed out that inclusion in the Pharmacopoeia would not in any way interfere with the legitimately established trade of manufacturers, but would tend to discourage the sale and use of such preparations."

Whether international agreement would be necessary or practicable in the adoption of a standard bichloride pastille, it would seem that at least some federal legislative action in the matter is eminently desirable. Probably the best solution of the problem, however, would be the replacement of mercuric bichloride as a household antiseptic by some equally efficacious and non-poisonous bactericide.

THE SIGNIFICANCE OF HEADACHE.

There is no symptom which is quite so common in nearly all disordered or diseased conditions as headache. Headache presumably is caused by cerebral irritation of a reflex, toxic or mechanical nature. Usually it is a minor symptom in conjunction with the more important concomitants. Yet this symptom may embrace and be the only outward manifestation of the disease or disorder, and be so varied in its character, distribution, etc., that a study of the symptom, in the few conditions in which it so behaves, will furnish the entire pathological diagnosis.

A headache that is worse on rising in the morning, but which has a tendency to wear off during the day, suggests brain tumor, for the reason that during sleep the intraventricular pressure is lower and can accommodate the increased exudation of fluid which may accompany this condition. On rising, the sudden normal increase of intraventricular pressure impinging against this resisting fluid causes the headache. During the day the increased ventricular pressure prevents the exudation of more fluid, and in fact causes the absorption of some of the fluid already in the ventricle, and thus relieves the headache.

A headache which increases in severity toward evening, and even continues throughout the night points to either a malarial or luetic intoxication,—the severity at this time being due to the nocturnal activity of the parasite and its toxins. Blood examination will easily detect a malarial infection, while a Wassermann reaction test will help to identify a syphilitic infection. In syphilis the headache, besides being toxic in causation, may be due to syphilitic endarteritis of the cerebral vessels, to gummy infiltration of the brain, or to a pure gumma of the brain. In gummy tumor the predominating symptom will be that of a brain tumor, and the toxic character will be masked. If the headache is due to the endarteritis, it would be very likely to be accompanied by apoplectic hemorrhages of greater or lesser severity. In syphilitic infiltration of the brain, the headache might be accompanied by very severe motor, sensory, and even mental manifestations.

A headache coming on regularly in the afternoon or toward evening, and made worse at any time by lying down, and which is usually located in the frontal region, is possibly due to frontal sinus disease In this condition the upright position favors the discharge of the pus through the infundibulum into the nasal cavity.

The so-called reflex headaches are due to irritations of the nerve endings over diseased teeth, in ear disease, refractive errors, etc., in which the irritations from all these places are transmitted to the sensory center in the pons, and thence to the cerebral cortex. It would seem that the cerebral cortex cannot determine whence the irritation came exactly, hence it is that the pain sensation is returned to other places than that from whence it came. For this reason pain areas, the referred pains, are not of much diagnostic help, except that certain irritations are usually referred to definite places, as, for example, tooth irritation to the temporal region, as is also ear irritation.

The condition known as migraine is characterized by the intermittency of the pain, by ocular symptoms, and often by succeeding nausea and vomiting. The pain is often exceedingly severe and the onset sudden. It usually begins on one side and may spread over the entire head very rapidly. The condition subsides just as suddenly as it begins. The causation is undetermined. The present most accepted theory is that it is a reflex neurosis. Others believe it to be toxic in nature, due to the accumulation of uric acid and the xanthin bases. Formerly it was ascribed to a retention of fluid in the ventricles of the brain, caused by a very small foramen of Munro, but this did not explain, any

more than the later theories, its onesidedness. Cyclic vomiting is believed to be the prototype of migraine in infants.

Headache, therefore, may be an unimportant transient irritation, or it may foreshadow a serious pathological condition. Hence the necessity for analyzing each instance, and for ruling out or establishing the presence of a gross pathological condition. Otherwise, when the nature of the headache becomes apparent, it will be too late to apply remedial measures.

ALCOHOLISM.

THE alcohol problem is one of the most difficult civilization has to settle. To this task the Fourteenth International Congress on Alcoholism addressed itself in Milan September last. Italy, although perhaps the largest wine producing country in the world, is said to have had, up to recent years, the smallest death-rate from chronic alcoholism. The historian Ferrero, by the way, in considering the vine in Roman History, declared that wine was an instrument in Romanizing barbarian provinces, the effectiveness of which has been too much disregarded. In Gaul, in Spain, in Helvetia, along the Danube, Rome taught many things,—law, war, road construction, city building, the Latin and Hellenic civilization and arts,—but she also taught wine drinking. Italy has from time immemorial cherished the vine. Oddly enough then, her humanitarians are now realizing the ravages of alcohol among the Italian people and the necessity of a vigorous campaign against this evil. Signor Falcioni in welcoming the delegates on the part of his government, spoke of an impression among some foes of alcohol that the Congress would not be welcomed in a great wine-producing country, and one which derived an immense part of its wealth from that source; but such was a mistaken impression, because his government well understood the object of the anti-alcoholic societies was not the suppression of wine drinking, but a campaign against the abuse of liquor. There were three hundred and fifty delegates, representing many governments and societies, asylums, hygienic institutes and so on.

Signor Falconi declared that up to recent years alcoholism among his people was confined to the cities and the factory workers, but that it is now spreading into the rural districts; and the enormous emigration from the latter has favored the spread of alcoholism, because those going to countries where alcoholism prevails more than in Italy return victims of the habit. And he considers that with the development of alcoholism there has been *pari passu* an increase of tuberculosis, and that there is a close relationship between alcoholism and crime.

MEDICAL NOTES.

TWO LIVING CENTENARIANS.—John Durrant, of Weybridge, England, is said to have been born in 1810. He smokes three ounces of strong tobacco weekly, but drinks no beer and very little wine.

Mrs. Bridget Dougherty Curran, of South Bethlehem, Pa., is said to have been born on Feb. 8, 1807, in Ireland. She still has four aged living sisters.

FIRE IN MILWAUKEE HOSPITAL.—Report from Milwaukee, Wis., states that on Feb. 10 a serious fire broke out in the basement of the municipal tuberculosis sanatorium in the neighboring suburb of Wanwatosa. Forty-five patients were safely removed. The total damage was $50,000.

BERI-BERI IN NEW JERSEY.—In the weekly report of the United States Public Health Service for Feb. 6, 1914, Dr. Herman B. Parker records the results of his investigation of several cases in the county jail at Elizabeth, N. J., which proved to be beri-beri. Twenty-two similar cases during the preceding three years were presumably also beri-beri.

UNITED STATES MORTALITY STATISTICS IN 1913.—Statistics published on Feb. 11, in Washington, D. C., show a general death-rate, for the registration area in 1913 of 13.8 per 1000, the same figure as in 1912.

"Of the eighteen registration states, Maryland, with 16.3 per 1000, showed the highest rate; Minnesota, with 10.7, the lowest. The other states were: California 11.9, Connecticut 14.4, Indiana 12.6, Kentucky 13.4, Massachusetts 14.7, Michigan 13.1, Missouri 12.4, Montana 13.0, New Hampshire 14.1, New Jersey 14.7, New York 15.2, Ohio 13.1, Utah 11.6, Vermont 12.6, Wisconsin 10.9.

"Of the forty-five registration cities, Portland, Ore., with 11.0 per 1000, showed the lowest rate; Memphis, with 22.9, the highest. Other cities' rates were: Birmingham 20.4, Los Angeles 14.0, Oakland, Cal., 12.3, San Francisco 16.7, Denver 14.5, Bridgeport 16.5, New Haven 16.2, Washington 17.05, Atlanta 19.3, Chicago 17.1, Indianapolis 16.3, Louisville 17.2, New Orleans 21.3, Baltimore 19.4, Boston 17.2, Cambridge 13.5, Fall River 18.1, Lowell 16.9, Worcester 16.8, Detroit 19.2, Grand Rapids 13.4, Minneapolis 13.0, St. Paul 13.0, Kansas City 16.3, St. Louis 16.2, Omaha 15.3, Jersey City 16.2, Newark 15.7, Paterson 14.7, Albany 19.2, Buffalo 17.2, New York 16.2, Rochester 15.3, Syracuse 16.3, Cincinnati 17.2, Cleveland 15.7, Columbus 16.2, Dayton 16.3, Toledo 17.0, Providence 15.8, Nashville 19.2, Richmond 22.4, Milwaukee 14.2."

Conference on Medical Education.—The Tenth Annual Conference on Medical Education and Public Health Education and Legislation is to be held in Chicago on Monday and Tuesday of next week, Feb. 23 and 24, under the auspices of the Council on Health and Public Instruction and the Council on Medical Education of the American Medical Association. Among the papers to be presented is one by President Lowell of Harvard on "The Danger to the Maintenance of High Standards from Excessive Formalism."

An Indian Centenarian.—White Eagle, a chief of the Ponca tribe, who died on Feb. 5 at Ponca City, Oklahoma, is said to have been born in 1803, and was supposed to be the oldest Indian in the United States.

Cancer Mortality in Königsberg.—Statistics recently published show that in 1880 the cancer mortality in Königsberg, Germany, was 53 per 100,000 of population. In 1893 it was 110; in 1907 it reached a maximum of 139. Since then it has steadily declined and in 1912 was 118. This recent decrease is believed due to the popular educative propagandum, initiated in 1907, which has led to earlier diagnosis and greater readiness to accept prompt and radical surgical treatment.

A Transfer of Authority.—Report from Washington, D. C., on Feb. 8 states that the bureau of food and drug inspection of the United States Department of Agriculture has been abolished. Its functions and authority will hereafter be exercised by the bureau of chemistry.

BOSTON AND NEW ENGLAND.

A Living Centenarian.—Morris D. Shimelovitch, of Brockton, Mass., who is said to have been born on Feb. 8, 1811, in Russia, celebrated recently his supposed one hundred and third anniversary. His health is excellent, and he walks outdoors daily.

Fire in Lawrence Hospital.—A fire occurred on Feb. 9 at the Lawrence (Mass.) General Hospital, but was extinguished before serious damage was done. Several patients were removed from their rooms, but no one was injured.

NEW YORK.

Health Federation.—The Health Federation of the City of New York, an association composed of some 150 organizations interested in matters of public health, was organized at a meeting held at the New York Academy of Medicine on Feb. 4, at which Dr. J. H. Huddleston presided. The plan of organization includes the establishment of an advisory body, to be known as the Central Council of Public Health, consisting of fifteen members, and among those appointed on the council were Dr. Huddleston, Dr. C. L. Dana, chairman of the Public Health Hospital and Budget Committee of the Academy of Medicine, Dr. Philip Van Ingen, medical advisor of the New York Milk Committee, and B. B. Burritt, acting general director of the New York Association for Improving the Condition of the Poor. At the meeting Dr. L. K. Frankel, one of the vice-presidents of the Metropolitan Life Insurance Company, reported that during the past year his company had sent visiting nurses to the homes of 17,000 of its industrial policy holders, making 108,000 visits at an expense of $61,000; E. S. Elwood, secretary of the Committee on Mental Hygiene of the State Charities' Association, described the work of the committee; and reports were made by representatives of various other organizations.

Division of Rural Hygiene.—The members of the State Grange, gathered in convention at Poughkeepsie on Feb. 5, were startled to learn from the health committee of the organization that while during the past year the death-rate in New York City was 13.7, in the country districts, villages and towns of less than 8,000 population of the state it was 15.4, and a recom-

mendation by the committee, urging the establishment of a special division of rural hygiene in the State Department of Health, was endorsed.

PAVILION FOR VENEREAL DISEASE.—An annex to the Long Island College Hospital in Brooklyn has been opened which is solely devoted to venereal diseases. The new pavilion, which has accommodations for 60 male patients, is two stories in height, the upper floor being reserved for gonorrheal cases and the lower floor for syphilitic. This is a welcome addition to the city's hospital facilities, for, with the exception of possibly one or two, none of the private hospitals have heretofore accepted patients suffering from venereal diseases, and those needing hospital treatment have been obliged to enter the public hospitals. For patients who are willing to pay for the privilege of greater privacy, two small wards, one on each floor and with four beds each, have been provided. The most approved modern treatment is assured by the hospital authorities, and specially trained male nurses are in attendance.

MORTALITY STATISTICS.—The weekly reports of the Health Department show that the mortality in the city in the month of January represented an annual death-rate of 14.80, as against 13.33 in December and 14.46 in January, 1913. The weekly average of deaths from measles increased from 9 in December to 12.5 in January; the weekly average from scarlet fever, from 5.25 to 11.25; from whooping-cough, from 2.5 to 3; from diphtheria and croup, from 22.75 to 31; from influenza, from 7.25 to 13.5; from epidemic cerebrospinal meningitis, from 2.75 to 3.25; from pulmonary tuberculosis, from 157.5 to 191; from pneumonia, from 107 to 133; from bronchopneumonia, from 85 to 108.25; from cancer, from 85 to 91; from apoplexy and softening of the brain, from 23.25 to 29.75; from organic heart diseases, from 208 to 241; from appendicitis and typhlitis, from 9.75 to 12.75; from cirrhosis of the liver, from 15 to 16.5; from Bright's disease and acute nephritis, from 113.25 to 123.5; and from puerperal diseases, from 9.25 to 15.25. Among the few diseases in which there was a decrease in mortality were the following: The weekly average of deaths from acute bronchitis declined from 15.25 to 13.76; from tuberculous cerebrospinal meningitis, from 11 to 9.5; from diarrheal diseases under five years, from 31.75 to 29.75; and from hernia and intestinal obstruction, from 15.25 to 12.75.

HOME SEGREGATION OF TUBERCULATES.—In last week's issue of the JOURNAL we commented briefly on the report recently published by the New York Association for Improving the Condition of the Poor, on its work in the home isolation and treatment of families made dependent by tuberculosis. In a model tenement, 27 such families, including 79 tuberculates, were segregated, and given fresh air, food, work and medical care.

"Eleven of these families, containing 23 tuberculous patients, 12 of whom were wage-earners, were discharged during the year. Six of the eleven families were rehabilitated, physically, socially, and economically. The other five had to be dismissed for persistent intemperance or refusal to follow advice. The condition of these, however, as a consequence of the treatment received was improved.

"No new cases of tuberculosis developed after admission. Sixty-one per cent. of the adult patients apparently were cured, 23% had their diseases arrested and 11% were much improved.

"In only four cases was there no progress. The improvement of the 65 children and 16 infants also was satisfactory. Eighteen of these were consumptive, 23 were suspicious cases, and most of the others were excellent candidates for the disease. At the end of six months, each child had reached a weight normal for its age.

"Upon admission to the hospital the average income of the six families was $6.42. When discharged the average weekly income of these families was a trifle less than $15."

This method, which may be regarded as an adaptation and extension of the "tuberculosis class" employed in Boston, is expected to produce social and economic rehabilitation as well as physical regeneration.

Current Literature

MEDICAL RECORD.

JANUARY 24, 1914.

1. KNOPF, S. A. *The Occupations of Afebrile Tuberculous Patients.*
2. NYDEGGER, J. A. *Hygiene of the Farmhouse and Farm.*
3. GOODMAN, A. L. *Tuberculosis of the Testicle.*
4. BROWN, L. *The Significance of Irregular Uterine Bleeding.*
5. ROBINSON, S. M. *Venous Circulation.*
6. CORNWALL, E. E. *Clinical Study of a Case of Chronic Intestinal Toxemia of Severe Type.*
7. CONKLIN, C. B. *Typhoid Spine. With Report of a Case Complicated by Thrombo-Phlebitis of the Left Femoral Vein.*
8. *SCHWARTZ, L. H. *Bacillus Lactis Bulgaricus in Infantile Gastroenteritis.*

8. Schwartz reports 55 cases of gastroenteritis in infants in which he used cultures of B. lactis Bulgaricus with good results. Some of the babies received no other medication—not even calomel or castor oil—and no bowel irrigations. While this treatment influenced diarrhea very favorably, it had no effect on vomiting. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 24, 1914.

1. BAINBRIDGE, W. S. *Chronic Intestinal Stasis Surgically Considered.*
2. QUIMBY, A. J. *Chronic Intestinal Stasis.*
3. HAYES, W. V. *Chronic Intestinal Stasis.*
4. ERDMANN, J. F. *Acute Pancreatitis.*
5. MCCASKEY, G. W. *Insanity Occurring in Latent Bright's Disease.*
6. LEWIS, S. *Abdomen Strengthening.*
7. WILENSKY, A. O. *Studies in the Treatment of Fractures Near the Elbow.*
8. MILLER, A. H. *Gas-Oxygen Anesthesia.*
9. ORENSTEIN, A. *Treatment of Disease in the Aged.*
10. TAYLOR, A. N. *The Physician and the Income Tax.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 24, 1914.

1. *LOVETT, R. W. *Principles of the Treatment of Infantile Paralysis.*
2. HEKTOEN, L. *The Mechanism of Recovery in Pneumonia. With Special Reference to the Crisis.*
3. *WILLSON, R. N. *The Treatment of the Pneumonias.*
4. MALLORY, W. J. *The Differential Diagnosis of Cholelithiasis from Gastric and Duodenal Ulcer.*
5. UNDERHILL, A. J. *Cysts of the Prostatic Urethra.*
6. HORNSBY, J. A. *Equipment of a Small Hospital; Making Over a Dwelling-House.*
7. STEVENS, E. F. *The Ward Unit of the General Hospital.*
8. LAMOREAUX, L. A. *Architecture of the Modern Hospital for Contagious Diseases.*
9. SCHMIDT, R. E. *Architecture of the Great Charity Hospital.*
10. *DE TARNOWSKY, G. *Sulphuric Ether Lavage in Infections. The Souligoux-Morestin Method. A Preliminary Clinical Report of Thirty Cases Treated by This Method.*
12. NILES, G. M. *The Treatment of Pellagra: An Optimistic Survey of Its Present Status.*
13. GRUBBS, S. B. *The Plague Outbreak in Porto Rico.*
14. MERRILL, T. C. *Is There a Toxemia Referable to the Eating of Chestnuts?*
15. KRUMBHAAR, E. B., AND MONTGOMERY, C. M. *Syphilis in the Medical Dispensary.*
16. BRADLEY, F. *The Call of the Child.*
17. OLITSKY, P. K., AND OLMSTEAD, M. P. *Precipitation Tests in Syphilis.*
18. HANZLIK, P. J. *The Liberation of Formaldehyd from Hexamethylenamin in Pathologic Fluids.*
19. KOLISCHER, G. *Clamp Resection of the Urinary Bladder.*
20. PFENDER, C. A. *Brazier's Disease, Brass-Founder's Ague, or Acute Brass-Poisoning.*

1. Lovett advises the use of hexamethylenamin in suspected cases of infantile paralysis, absolute rest in the acute stages, with abstinence from massage and electricity till all tenderness is over and prevention of contractures by passive means. As soon as tenderness is over, generally at the end of four weeks, massage, electricity and muscle training are begun, of which the latter is the most valuable. Operative treatment and braces come later. This is a short, concise and very excellent article on this subject.

3. Willson emphasizes the importance of abundant fresh air, as near a milk diet as possible, forced water, frequent thorough cleansing of the gastro-intestinal tract, even with castor oil, every second or third day and avoidance of over-medication, as the important points in the successful treatment of pneumonia.

10. De Tarnowsky advocates the seemingly very radical procedure of pouring sulphuric ether into the abdominal or pelvic cavities at operation for pelvic or general peritonitis. In 30 cases no deaths have resulted. [E. H. R.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

JANUARY 1, 1914.

1. *WIGGERS, C. J. *Does Cardiac Rhythm Alone Determine Human Blood-Pressure Variations?*
2. KRUMWIEDE, C., JR., AND PRATT, J. S. *Observations on the Growth of Bacteria on Media Containing Various Anilin Dyes.*
3. GILLESPIE, L. J. *The Acid Agglutination of Pneumococci.*
4. *HANES, F. M. *An Immunological Study of Pneumococcus Mucosus.*
5. *ROUS, P., AND MURPHY, J. B. *On the Causation by Filterable Agents of Three Distinct Chicken Tumors.*
6. *MARINE, D. *Further Observations and Experiments on Goitre (So-called Thyroid Carcinoma) in Brook Trout.*
7. MARINE, D. *Observations on Tetany in Dogs. Relation of the Parathyroid Tissue Removed. Accessory Parathyroids, Pregnancy, Lactation, Rickets, Sulphur, and Diet. Relations of Parathyroids to Sugar Tolerance; Effect of Calcium Salts.*
8. TTOMAS, W. S. *Experimental Hydrocephalus.*

1. Wiggers concludes that changes in cardiac rhythm are not the only determinants of blood-pressure variation in man. Heart-rate changes seem to be the only determining influence in blood-pressure variations in the minority of cases. The majority of cases show the intervention of respiratory influence.

4. Hanes studied the organisms described by Schatmüller under the name of Streptococcus Mucosus, which were obtained from six cases of lobar pneumonia. Inasmuch as his study showed that this well defined group of organisms had definite characteristics which indicated a closer relationship to the pneumococci than the streptococci, he prefers the name of Pneumococcus Mucosus.

5. Rous and Murphy have continued their studies of the production of tumors by means of an emulsion of fresh tumor that passes through a Berkefeld filter. They studied three entirely different varieties of chicken tumors. The filtrate in each instance when injected into another animal, only give rise to growths of the precise kind from which it has been derived. They believe that a group of entities, which are, of course, cell-free, exist in the filtrates, which cause in chickens neoplasms of diverse character.

6. By a comparative study of a trout hatchery in different years, Marine concludes that goitre in fish is a symptomatic manifestation of a fault of nutrition. In this particular hatchery water played no essential part in the causation of goitre. The determining factor seemed to be the diet. [R. I. L.]

AMERICAN JOURNAL OF SURGERY.

JANUARY, 1914.

FRACTURE NUMBER.

1. *MAGRUDER, E. P. *The Treatment of Fractures.*
2. VAN DUYN, E. S *Deductions from Our Experi-*

ence at the Hospital of the Good Shepherd in the Open Treatment of Fractures.
3. ESTES, W. L. *Conservation in the Treatment of Fractures.*
4. BRICKNER, W. M. *Metal Bone Plating a Factor in Non-Union. Autoplastic Bone Grafting to Excite Osteogenesis in Non-Union.*
5. *ALBEE, F. H. *The Inlay Bone Graft as a Treatment of Ununited Fractures. A Report of Fifteen Successful Cases.*
6. STIMSON, L. A. *On the Diagnosis of Fracture.*
7. YOUNG, J. K. *Vicious Union in the Neighborhood of Joints.*
8. GERSTER, J. C. A. *A Splint for Maintaining Nail Extension During Transport.*
9. *COTTON, F. J. *Astragalus Injuries.*
10. ELSBERG, C. A. *Some Immediate and Remote Results of Fractures of the Skull and of the Spine.*
11. LUCKETT, W. H., AND STEWART, W. H. *Fracture of the Skull; the Roentgen Ray as an Aid in Its Diagnosis.*
12. SHEA, A. W. *The Operative Treatment of Fracture of the Olecranon.*

1. Magruder cites a case of comminuted fracture of both bones of both legs, in which the x-ray showed strikingly similar pictures. One leg was treated by the closed method; the other by an open method with plating, with the result that consolidation occurred four weeks earlier on the closed side. From this and similar experiences, he advocates the closed method in the treatment of fractures when an approximately anatomical coaptation can be secured, but considers operation indicated when there is wide displacement of fragments, and in particular fractures when ankylosis threatens. When operation is indicated, it should be performed as early as possible in order to wash out blood clots and tissue shreds, to bring the soft structures into closest approximation to the bone for the elimination of dead spaces and for splint effect, and in order to relieve the system of the unnecessary task of absorption. To maintain fixation in cases where there is tension, heavy plates are to be avoided, on account of the size of the foreign bodies introduced, which tend to cause pressure necrosis and infection. He finds tinned-steeled-annealed wire, passed partially through the cortex between periosteum and medullary cavity, without entering the canal at all, the best method when applicable, and especially in oblique and spiral fractures. For this procedure he used a grooved bone drill, through which wire is easily passed after the hole is made, and before the drill is withdrawn.

5. Albee points out that in cases of pseudo-arthrosis in ununited fractures in the ends of the fragments there is sclerosis or eburnation, due to a diminution or entire cessation of osteogenetic activity of the cells, with an over-deposit of calcium salts. The therapeutic requirements to meet this condition are fixation, stimulation of osteogenesis in the fragments, and an osteogenetic scaffold connecting the active bone in each fragment back of the eburnated areas. The Lane plate furnishes fixation only; the bone transplant fulfills the last two requirements, and if inlaid furnishes fixation as well. He cites illustrations in a series of fifteen cases of pseudo-arthrosis, in all of which bony union was obtained. His method consists in inserting a notched tibial graft into a groove in the fractured bone. Accuracy of approximation of graft to groove is obtained by the use of a twin saw with parallel blades, the graft being held in place by kangaroo tendon passed through drill holes in each fragment. In cases of ununited hip fracture, he dowels out a bone peg from a tibial graft, and drives this into a hole motor-drilled in the great trochanter through the center of the neck into the capital fragment.

9. Cotton calls attention to all different forms of injury to the astragalus that are likely to be met with. Some of these, when overlooked, give extraordinarily poor functional results; whereas, if the condition is recognized, the reduced cases recover extraordinarily well. The varieties mentioned are too numerous to be reviewed in this column, but the article will afford a valuable chapter to anyone interested in the diagnosis and treatment of injuries to the ankle.

[G. A. L., JR.]

THE LANCET.

JANUARY 3, 1914.

1. *WRIGHT, A. E., MORGAN, W. P., COLEBROOK, L., AND DODGSON, R. W. *Observations on Prophylactic Inoculation Against Pneumococcus Infections and on the Results Which Have Been Achieved by It.*
2. SEQUEIRA, J. H. *Some Late Manifestations of Inherited Syphilis.*
3. LABBÉ, M., AND BOUCHAGE, A. *Glycosuria in the Course of Affections of the Liver.*
4. HERRINGHAM, W. P. *A Case of Diabetes Insipidus.*
5. PATERSON, P. *An Operation for the Fixation of a Moveable Kidney.*
6. GOULD, A. P. *An Unusual Sequel to Cholecystectomy.*
7. RAW, N. *Tuberculous Rheumatism.*
8. BATTLE, W. H. *Bullet Wound of the Spine.*
9. FORDYCE, A. D., AND CARMICHAEL, E. W. S. *Nasopharyngeal and Cervical Glandular Tuberculosis in Children.*
10. DAVIES, D. L. *Modern Treatment of Lachrymal Obstruction.*

1. In the first part of this article Wright and others discuss the causation, prophylaxis and treatment of the pneumonia which affects native laborers, and in particular the tropical native laborers in the Rand mines. He discusses the preparation of vaccines, technic and dosage, scheme of administration and maximum dosage, and describes in detail various complex experiments on this subject. So far the results show that the natives' natural deficiency in pneumo-opsonic power does stand in some causal relation with his low resisting power to pneumococcic infections.

[J. B. H.]

JANUARY 10, 1914.

1. *WRIGHT, A. E., MORGAN, W. P., COLEBROOK, L., AND DODGSON, R. W. *Observations on Prophylactic Inoculation Against Pneumococcus Infections and on the Results Which Have Been Achieved by It.*
2. *FRASER, H., AND STANTON, G. T. *Unpolished Rice and the Prevention of Beri-beri.*
3. FUNK, C. *Studies on Growth, the Influence of Diet on Growth, Normal and Malignant.*
4. CORNER, E. M. *A Simple and Successful Measure for the Perforation of a Gastric and Duodenal Ulcer.*
5. GRACE, J. J. *Note on the Treatment of Sciatica.*
6. JONES, A. W. *Two Cases of Post-operative Hemiplegia.*
7. SKEVINGTON, J. O. *Secondary Hemorrhage from Deep Epigastric Artery after Operations for Appendix Abscess.*
8. KENNEDY, A. M. *Rupture of the Heart by External Violence.*
9. CATON, R. *Health Temples in Ancient Greece and the Work Carried on in Them.*

1. In this second paper, Wright and others describe their results obtained from therapeutic and prophylactic inoculations of pneumococcus vaccines. The results of treatment of the disease itself showed

nothing in favor of the inoculation method. As a prophylactic method, there was a slight percentage favoring those who were inoculated against the uninoculated cases. They do not recommend any general inoculation against pneumonia, but they urge the further pursuit of investigations in this direction.

2. Fraser and Stanton discuss rice, polished and unpolished, and its relation to beri-beri in the Malay peninsula. They urge that effort be made to prepare a palatable form of unpolished rice and that its use be made obligatory by law if necessary. [J. B. H.]

British Medical Journal.

January 3, 1914.

1. *Gould, A. P. *An Address on Radium and Cancer.*
2. *Morison, R. *A Clinical Lecture on the Triple Syndrome in Abdominal Emergencies.*
3. *Osler, W. *An Address on the Medical Clinic: A Retrospect and a Forecast.*
4. Mackenzie, J. *On the Teaching of Clinical Medicine.*
5. Sprawson, C. A. *A Family with Cerebellar Ataxia.*

1. Gould states that "the true therapeutic use of radium rests upon its selective affinity for cancer cells and not upon a general caustic or destructive power." He then cites in detail five cases and discusses the dangers of this treatment such as danger to the operator, sloughing, thrombosis, hemorrhage and constitutional reactions. He then takes up the limitations of this treatment as regards inaccessibility, metastases, painful local reactions, etc. and whether or not radium should be used as an alternative to operation, citing four cases in which radium seems to be acting favorably in place of a most extensive operation. The article is of great interest.

2. This is a clinical lecture on abdominal emergencies based on eight illustrative cases.

3. This article of Osler's is sufficiently described by the title. It is of great interest and should be read by every one connected with medical schools and medical teaching. [J. B. H.]

January 10, 1914.

1. *Barr, J. *Pneumonia: Its Nature and Treatment.*
2. *Browning, C. H. *Investigations on Syphilis as Affecting the Health of the Community.*
3. MacLaurin, C. *The Treatment of Hydatid of the Liver.*
4. Spencer, W. G. *Two Cases of Tuberculous Peritonitis and Salpingitis with Menstrual Complications.*
5. Mayberry, G. M. *The Administration of Guiacol in Pulmonary Tuberculosis.*
6. Rudolf, R. D. *Epidemic Cervical Adenitis.*

1. This is an excellent clinical article on pneumonia. Barr here considers the incidence of the disease, its relation to race, sex, age; he takes up etiology, prevention, causes of death in adults and children. He discusses the causes of cardiac failure, the use of the abdominal ice bag, the maintenance of systolic blood-pressure, ventilation, etc. In the general principles of treatment he emphasizes the need of sleep; he advocates the use of lime salts, such as calcium chloride, etc., making claims for this method of therapy which, to say the least, must be difficult to substantiate. On the whole, the article is full of common sense except as regarding drugs. If each patient were given all those he recommends, his stomach would become a veritable apothecary shop, and the results might not be good.

2. Browning, in an interesting article, considers syphilis and its relation to public health. His investigation was based on the clinical examination of the patient, the examination of the members of his family, the history of the patient and his family, and the result of the Wassermann test with the blood of the patient and of the members of his family. In this study he takes up the prevalence of congenital syphilis, mental deficiency and epilepsy, heart disease in children, deafness in children, ozena, aortic disease, nervous diseases, eye disease, metritis etc. and its relation to syphilis. His conclusions urge further use of the Wassermann reaction, more thorough treatment in hospitals and institutions whenever possible. [J. B. H.]

Münchener Medizinische Wochenschrift.

No. 1. January 6, 1914.

1. *Baermann, G. *Therapeutic Results with Salvarsan Copper.*
2. Straub, W. *Experimental Chronic Lead Poisoning.*
3. Hacker, V., and Lebedinsky, N. *The Combined Effect of Ether and Radium on Embryonal Cells.*
4. Kleist. *Aphasia and Mental Disease.*
5. Oeller, H., and Stephan, R. *Clinical Studies with Abderhalden's Dialysis Method.*
6. Wegener, E. *Further Studies with Abderhalden's Dialysis Method.*
7. Berndt, F. *Perineal Enucleation of the Prostate.*
8. Lunckenbein. *The Treatment of Malignant Tumors.*
9. *Gibson, A. G. *Preliminary Report on a Streptothrix Infection as the Cause of Banti's Disease.*
10. Kehrer, E., and Dessauer, F. *Studies in Pelvimetry by Means of the X-rays.*
11. Beyer, W. *Acute Diphtheritic Bronchitis.*
12. Schüle. *The Intravenous Use of Camphor.*
13. Bucky, and Silberg, M. *A Compression Tube with Bucky's Effect.*
14. Abahary. *Charles Richet.*

1. Ehrlich and Karrer have made a preparation of salvarsan and copper, assuming that the antiseptic action of these two metals together might be greater than that of either one alone. Baermann has used the new drug, therapeutically, in 45 cases of amebic dysentery, frambesia, malaria and leprosy. He describes the method of administration of this compound, the dosage, and the clinical studies which he has made with its use.

The drug had no effect in amebic dysentery, but gave striking results in the local and general treatment of frambesia, in tertian, quartan, and pernicious malaria, and in leprosy. Baermann considers these observations of a preliminary nature, but concludes that the results show for the drug a high chemotherapeutic strength.

9. Gibson has collected six cases of splenic tumor, of which three clinically were Banti's disease, among 300 autopsies or operations. Two distinct types of lesion were observed. In the first, the spleen was infarcted and contained small areas of pigmentation. In the second microscopic examination was more normal except for an excessive amount of blood and for increased trabeculations. The interesting feature of these cases, however, was that sections from each case stained by Wheal and Chown's method showed the presence of streptothrix filaments differing morphologically in the different types of lesion. Although cultures from the organs were negative, Gibson assumes that the splenic lesions were due to the streptothrix infection and that an agent of this kind may be the cause of certain cases of Banti's disease. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 52. DECEMBER 29, 1913.

1. EPPINGER. *Concerning the Pathology of the Function of the Spleen.*
2. PEREZ. *Ozena—an Infectious and Contagious Disease.*
3. HOFER. *On the Etiology of True Ozena.*
4. *BOSS. *The Relation between the Gall Bladder and the Chemical Reactions of the Stomach.*
5. JACOBS. *Granular Contraction of the Kidneys in Childhood.*

4. The gall-bladder has been considered of importance in preventing a constant flow of bile into the duodenum, irrespective of need for it, and in preparing a thicker and more efficient bile for the digestive processes. Various investigations have been made to determine the effect on gastric secretion of the loss of gall-bladder function, whether through its removal, or obstruction in the cystic duct. Hohlweg has stated that in this condition there usually results either hyperacidity or anacidity. The author presents brief examinations of twenty cases, which do not bear this out at all,—many show entirely opposite results. He agrees with Magnus that, so far as can be determined from the cases examined to date, a continuous, unchecked flow of bile, or on the other hand a diminished one, do not cause regularly either hypo- or hyperacidity. He considers that no definite conclusions can be drawn as to the effect of cholecystectomy on the secretion of hydrochloric acid.

[R. H. M.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 50. DECEMBER 11, 1913.

1. MEYER, O. *Opening of the Tear Sac Through the Nose.*
2. *NOVAK, J. *Atropin Treatment of Dysmenorrhea.*
3. HINTESTOISSER, H. *Postoperative Morphine Poisoning.*
4. SPARMANN, DR. *Report on the Course of Malignant Tumor Treated with Radium.*
5. SCHERBER, G. *Further Report on Cases of Syphilis Treated Early with Mercury.*
6. KERL, W. *Injections of Concentrated Solutions of Neosalvarsan.*
7. STRISOWER, R. *My Experiences in the Cholera Epidemic in Servia During the Summer of* 1913.

2. The author cites 38 cases of dysmenorrhea treated with atropin, of which 30 reacted favorably. The method of the action of atropin is not definitely known, but supposedly it reduces the force of the uterine contraction or lowers the patient's sensitiveness to them. In the former instance it might be of value in preventing imminent miscarriage. [F. S. K.]

No. 51. DECEMBER 18, 1913.

1. KYRLE, J., AND SCHOPPER, K. *Investigations on the Effect of Alcohol on the Liver and Testicles of Rabbits.*
2. ROSSLER, F. *The Treatment of Trachoma with Ultra-Violet Rays.*
3. *PHILIPOWITZ, T. *Contribution of the X-ray Therapy of Lymph Node Tuberculosis.*
4. FREUND, E. *Chemical Principles of Carcinoma Therapy.*

3. The author reports marked success in the x-ray treatment of tuberculosis of the lymph-nodes, and describes his methods. The majority of cases are cured, the others show marked improvement. Twenty-six patients were treated, one was lost track of, the rest gave the following results:

No. of Treatments.	No. of Patients.	Cured.	Nearly Cured.	Improved.
20-28	4	3	1	
10-20	8	2	4	2
3-10	13	0	3	10

[F. S. K.]

No. 52. DECEMBER 25, 1913.

1. PHILIPOWICZ, J. *Appendicitis in Old Age.*
2. *HOFBAUER, T. *The Clinical Significance of Thorax Depression.*

2. The author draws the following conclusions: It has generally been supposed that narrow thorax predisposes to phthisis. Czerny by investigation has proved that it occurs more frequently in children with full rounded chests and in whom the respiratory excursion is comparatively small. In such children the thorax is in a constant state of expansion, and though the static alveolar air is increased the renewal of air is diminished. From the above the author believes that in the usual methods of respiratory exercise that the value of inspiration is exaggerated and that deep expiration is at least fully as important. [F. S. K.]

REVUE DE CHIRURGIE.

JANUARY, 1914.

1. *CRILE, G. W. *The Kinetic Theory of Shock and Operation Without Shock.*
2. *BILLET, H. *The Anterior Routes of Approach to the Elbow Joint.*
3. LEVEUF, J. *The Right Omental Diverticulum in the Newborn, Its Vestiges in the Adult.*
4. FIESCHI, D. *New Tissue.*
5. *HAMANT, AND PIGACHE, R. *Critical Study of Coccygodynia.*

1. Crile's article is a restatement of his familiar theory of anoci-association.

2. Billet believes that anterior approach to the elbow-joint is indicated for capsulorraphy, arthrotomy, or localized bone lesions.

3. Leveuf presents an embryologic study in explanation of the occurrence of pericolic veils and ligaments.

5. The authors believe that the term coccygodynia should be reserved for pain exclusively located in the coccyx. It is due to luxation of the coccyx from external or internal violence. The only treatment is surgical, complete resection of the coccyx, which cures the coccygodynia without involving functional disabilities. [R. M. G.]

REVUE DE MÉDECINE.

JANUARY, 1914.

1. *DEBRÉ, R., AND PARAF, J. *Complement Fixation. The Reaction of the Antigen.*
2. HAMBERT, G., AND ALEXIEFF, W. *Contribution to the Study of Cancerous Meningitis.* (*Conclusion.*)

1. In a long series of cases Debré and Paraf have performed complement fixation reactions upon the urine of patients suspected of genito-urinary tuberculosis. The antigen was, at first, a source of considerable difficulty, since all the substances employed showed great variation in sensitizing power. The latter, when once established, remained in most instances in its original strength only for a short time

The anti-serum of man, small laboratory animals and artificially protected horses and cows, was employed. Great variation was found from serum to serum and between different samples from the same animal. The serum of the horse was at last found the strongest and most lasting, and was used in the bulk of the work cited in this paper.

The urine from the suspected patient or from the suspected kidney is employed in varied dilutions, and the latter with the antigen and complement is mixed with the hemolytic system. The procedure from this point is similar to that used in the test of Wassermann. When the tests and controls react in the expected manner no trouble results. But, the antigen may become, through age or accidental infection, antihemolytic. The latter can be avoided by proper care in preserving the serum.

On the other hand, the urine, in certain instances, shows such an anti-hemolytic power. This difficulty is overcome with cloudy urines by centrifugalization of the specimen, diluted 1:10. When the urine is clear its anti-hemolytic power is titrated and a sufficient amount of complement is added to neutralize or attach the free antibodies in the urine.

In all, 128 tests were performed upon 83 patients. The findings have been confirmed by animal inoculation and in many instances by pathological examination of tissues removed at operation.

The results show an extremely high percentage of positive readings in cases which were known to be tubercular or were subsequently proved so. The converse is also true.

The importance of this simple and immediate test for the determination of unilateral tubercular renal involvement can scarcely be overestimated.

[L. H. S.]

Miscellany.

MASSACHUSETTS MEDICAL SOCIETY.

STATED MEETING OF COUNCIL.

A stated meeting of the council of the Massachusetts Medical Society was held at the Boston Medical Library, Feb. 4, 1914, at twelve o'clock noon, the president being in the chair and eighty-eight councillors present.

The minutes of the last meeting were read and accepted.

The following delegates were nominated by the chair and duly appointed:

Delegates to the American Medical Association for two years: J. B. Blake, Boston; alternate, Gilman Osgood, Rockland. H. G. Stetson, Greenfield; alternate, L. A. Jones, North Adams. L. F. Woodward, Worcester; alternate, J. F. Burnham, Lawrence. For one year, alternate, R. I. Lee.

Delegates to Maine Medical Association: F. W. Snow, Newburyport; F. W. Anthony, Haverhill.

Delegates to New Hampshire Medical Society: J. B. Thomes, Pittsfield; C. S. Adams, Wollaston.

Delegates to Rhode Island Medical Society: J. H. Gifford, Fall River; E. W. Burt, Westport.

To Connecticut State Medical Society: F. B. Sweet, Springfield; Philip Kilroy, Springfield.

To National Legislative Committee of the American Medical Association, Feb. 23, at Chicago, C. F. Withington.

To Conference on Medical Education, Feb. 24, and to the Association of American Medical Colleges, Feb. 25, at Chicago, H. C. Ernst.

The secretary read the petition of one Fellow for reinstatement, and a committee was appointed to consider the petition.

The reports of the committees appointed to consider the petitions for reinstatement of six Fellows were acted on by the council separately. Five were reinstated and one rejected.

The secretary read two letters from the American Medical Association inviting him to attend a meeting of the secretaries of the state medical societies at the building of the American Medical Association in Chicago on Feb. 25, and to present to this meeting the plan of organization of the Massachusetts Medical Society.

Dr. Arnold moved, and it was

Voted, That the council authorize the secretary of the Massachusetts Medical Society, or some member to be chosen by the president, to attend the proposed meeting of secretaries of the state societies and the conferences to be held at Chicago, Feb. 23 to 25, and that the society defray expenses other than those paid by the American Medical Association.

A letter was read from Wisner R. Townsend, secretary of the Medical Society of the State of New York, advocating the payment of the expenses of the delegates to the House of Delegates of the American Medical Association by the trustees of the American Medical Association. This was discussed by Dr. Arnold, who said: "Having served as delegate to the American Medical Association for several years, and knowing that matters of this sort are considered by the trustees in a very fair spirit, and that they are ready to do everything that is for the good of the association and of the state societies that comes within their means, and inasmuch as this has been presented to the trustees, and it is a question of ways and means, about which we know very little, it seems to me that we are hardly in position to take action at the present time. If the trustees should vote in favor of such action and the association pays the expenses, we should be very glad to be relieved of that expense. If the trustees decide at the meeting that it is inadvisable, I understand that the New York State Society is to bring it before the House of Delegates, and I move that this matter be referred to our delegates at the next meeting of the House of Delegates of the American Medical Association for their consideration at that time."

It was so voted.

The treasurer read his report for the eight and one-half months ending Dec. 31, 1913, and the report of the Auditing Committee was read by Dr. J. L. Huntington.

Voted, To accept the reports.

The report of the Committee on Membership and Finance was presented by Dr. F. W. Goss, recommending that two members be transferred from one district to another, that six be placed on the retired list, and that fourteen be allowed to resign.

Voted, To Accept the report and adopt its recommendations.

The Council voted the following appropriations for the standing committees:—

Of Arrangements	$3000
On Publications and Scientific Papers	$3000
On Ethics and Discipline	$100
On State and National Legislation	$300
On Public Health	$25

Also that three thousand dollars ($3000) from the treasury be distributed among the district societies.

On a query by a councillor as to how the dividend is distributed, Dr. Buckingham said that by a vote passed some twenty or thirty or forty years ago, the dividend is distributed among the different district societies in proportion to the amount of the dues collected by the district treasurer previous to a definite date, the object being to spur district treasurers to get in payments promptly. The time when payments should be considered in advance or in arrears was in the past at the close of the annual meeting. Last year when the new by-laws were made, a provision was inserted that this time should be brought forward, so that now it is the first of June. Thus, in order that a district may be entitled to draw anything on this rebate, payment of dues must be made before June 1.

The dividend is not distributed according to the number of members in a district society, but according to the amount of dues paid up. The society which sends in twenty-five dues with seventy-five members gets just one-third as much as the society which sends in the whole seventy-five dues before the stated time.

Dr. G. B. Shattuck presented the report of the Committee on Publications and Scientific Papers. He read the propositions submitted by Dr. Homer Gage at the meeting of the council on Oct. 1, 1913, and the vote referring the matter to the Committee on Publications, requiring a report at the next meeting of the council. (See BOSTON MEDICAL AND SURGICAL JOURNAL, Oct. 9, 1913.) The report of the committee was as follows:

"The Committee on Publications and Scientific Papers have considered the proposition that the Massachusetts Medical Society should take over the BOSTON MEDICAL AND SURGICAL JOURNAL, and do not consider this step would be wise, even if the owners should consider favorably such a scheme.

"The committee have considered the proposition that the Massachusetts Medical Society should issue a monthly bulletin of its own, and believe that the association with the BOSTON MEDICAL AND SURGICAL JOURNAL, outlined below, offers greater advantages both to the society and to the JOURNAL, and they therefore do not favor the independent issuance by the society of a monthly bulletin.

"The committee have considered the proposition concerning the change in the method of issuing the various publications of the society and a possible closer association with the BOSTON MEDICAL AND SURGICAL JOURNAL, and after conferences with the owners of the JOURNAL, offer the following suggestions, which have already been favorably considered by the owners.

"1. That some connection between the Massachusetts Society and the BOSTON MEDICAL AND SURGICAL JOURNAL is advisable and feasible.

"2. That the BOSTON MEDICAL AND SURGICAL JOURNAL be incorporated under the laws of Massachusetts.

"3. That after incorporation, the owners agree to give one share of stock to each member of a committee of three, to be appointed by the Massachusetts Medical Society, one of whom shall be the secretary of the society, which committee shall serve with the owners as directors of the BOSTON MEDICAL AND SURGICAL JOURNAL, having control over its affairs.

"4. That when a representative of the Massachusetts Medical Society shall cease to serve on this committee he shall surrender his share of stock to the owners.

"5. That the owners agree that as long as the association with the Massachusetts Medical Society shall continue they will transfer their stock only to physicians approved by the board of directors.

"6. That there shall be added to the editorial staff of the JOURNAL, to be appointed by the directors and with the approval of the editor-in-chief, an editor, or editors, who shall represent the Massachusetts Medical Society, and be members of the regular editorial staff of the JOURNAL, having a voice in the conduct of the JOURNAL, as well as in matters which peculiarly concern the society.

"7. That in consideration of the advantages expected to be realized by the Massachusetts Medical Society from its association with the BOSTON MEDICAL AND SURGICAL JOURNAL, and in further consideration of the fact that in the opinion of the present publisher such association may at least temporarily entail increased expense to the JOURNAL, to meet which there are at present no available resources, the Massachusetts Medical Society agrees, if it is necessary in the opinion of the directors, to furnish to the directors from its funds a sum not to exceed two thousand dollars a year for three years, to compensate the JOURNAL for possible financial loss arising from its association with the Massachusetts Medical Society.

"8. That if the association between the Massachusetts Medical Society and the BOSTON MEDICAL AND SURGICAL JOURNAL be terminated before three years have elapsed, the Massachusetts

Medical Society shall not be held financially responsible for any losses to the JOURNAL after the end of the calendar year in which the association is terminated.

"The Committee on Publications and Scientific Papers further recommend:—

"1. That if the above suggestions are adopted, the society abandon the separate publication of its proceedings and medical communications, and that as far as practicable it publish these and all other matter only in the BOSTON MEDICAL AND SURGICAL JOURNAL, in such form as may be later determined. These publications shall be sent to each member of the society.

"2. That as soon as possible some arrangement be made whereby each number of the BOSTON MEDICAL AND SURGICAL JOURNAL be furnished to each member of the society.

"3. That a special committee of three, one of whom shall be the secretary of the Massachusetts Medical Society, as previously stated, be appointed, with power to carry out the recommendations of the council and to serve with the owners as directors of the BOSTON MEDICAL AND SURGICAL JOURNAL for one year."

After some discussion, participated in by Drs. H. Gage, Worcester, Cotton, J. B. Blake, Crowell, Bartol, and Arnold, it was voted to accept the report.

On motion by Dr. J. B. Blake, the privileges of the floor were given to the members of the Committee on Publications and Scientific Papers, and Drs. Taylor and Osgood explained the provisions of the report. They favored a committee of three to consider and put into effect the recommendations of the committee.

Dr. Gage favored a committee to which to refer the report for further consideration on account of the importance of the matter. Dr. Crowell suggested that the question be referred to the Committee on Membership and Finance. Dr. Gage said it was immaterial to him whether it was given to a small committee, the Committee on Membership and Finance, or to an even larger committee, but on general principles, he believed that a smaller committee would be more efficient. Dr. Cotton thought the committee should be a larger one and representative of the state at large, and he moved that the committee consist of the following four officers of the society: president, vice-president, secretary, and treasurer, and five members of the council to be nominated from the floor. Dr. Harrington thought it would be better to have the five appointed by the chair, and proposed this as an amendment to Dr. Cotton's motion. The amendment being accepted by Dr. Cotton, the motion as amended was put by the president and was carried unanimously.

On motion by Drs. Palmer and Cook, it was voted to have the report of the Committee on Publications and Scientific Papers printed and sent to the members of the council, together with a report of the proposed committee of nine.

Dr. Ryder read the following report of the committee appointed to consider the working of the malpractice act:

"Your committee appointed to consider what if any changes should be made in the 'Act for the Defence of Suits for Malpractice,' report that they recommend that the articles stand for the present as they are, with such explanations as are herein described.

"Interpretations of the articles as given by the committee seemed to clear the atmosphere of misunderstanding and to give the secretary of the society a more succinct translation of them.

"Our conclusions were based largely on a report which Dr. George W. Gay received from the secretaries of the various state societies which have a Medical Defence Act, in response to a number of questions which he propounded.

"The epitomized summary of those replies is as follows:—

"The following state medical societies, twenty in all, have a medical defence act for the protection of their members when sued for malpractice: New York, New Jersey, Pennsylvania, Illionis, Iowa, Michigan, Massachusetts, Minnesota, California, Kentucky, Kansas, Indiana, Maryland, West Virginia, North Dakota, Nebraska, Mississippi, Missouri, Vermont, and Wisconsin. In replies to inquiries from all except the last, the following facts show a remarkable unanimity of opinion and practice in the framing of the acts and in the enforcement of the same.

"The act has been in force in the various states from two to twelve years, New York being first in the field, and having had a very large and a very successful experience in its use. The act is satisfactory in all the states with possibly one exception, the only state in which any move has been made to repeal the law.

"The average number of suits brought annually in the different states varies from none to about twenty-five or thirty. Of course a much larger number of threatened actions call for consideration by the medical defence committees, and are disposed of in various ways without coming to trial. In fact, this is one of the chief values of the act.

"The approximate annual expense of the act in the different states varies from nothing to six thousand dollars. Only one spends more than thirty-five hundred dollars annually. During the five years that the Massachusetts Medical Society has had the act in force the annual expense has averaged $385, or about eleven cents annually for each member.

"None of the state societies pay verdicts. They pay for counsel and court fees and perhaps a few other contingent expenses.

"Most of the societies do not pay the medical experts anything except travelling expenses, etc. Only four pay any expert fees and those are only nominal.

"Most of the societies defend their members in all civil suits regardless of the merits of the case. The decision of this question rests with the medical defence committee in all the societies. Two states have no separate committee, the work being done by the president and secretary.

"Private insurance is not generally encouraged. A few advise protection in damages, but not in defence alone. The objections to insurance against verdicts lie in the supposition that it encourages suits for the purposes of obtaining hush money, or settlements without trials. This can be obviated by a restraining clause in the policy.

"Many of the societies aid those carrying private insurance, some dividing the expense with the company. Others only advise, but do not incur any expense. Nearly all of the societies recommend their members to depend upon their counsel; in other words, to place their cases immediately in the hands of the societies for defence. It must be apparent to all that the earlier a case receives investigation the better for the defence.

"The evidence in relation to the advantages of the Medical Defence Act is overwhelmingly in its favor. In only one state has any effort ever been made to repeal, and that was not successful. The medical associations through appropriate committees can do this work much better than any agency. They understand the nature of the situations far better than any others can. They are not in the work for the money they can get, but only to protect the innocent from imposition and fraud. As a rule the societies do not settle cases, and under no circumstances do they pay damages. Hence there is no inducement for a threatened suit with that in view. They may advise the defendant in certain cases to settle, but he pays the bills, not the society.

"The suggestions for amendments to the act as read at a previous meeting of the councillors, which had for their ultimate aim a better understanding of the several articles of the act were as follows:

"1. 'The consideration of excluding from the benefits of our Defence Act all Fellows who have insurance with commercial companies.'

"The committee report that any Fellow according to *Article first* of the act, may avail himself of the privileges of this act, but that it is not the intent of the act to join hands with commercial insurance agencies. It is urged that all Fellows when possible place their defence in the society's keeping.

"2. 'A more exact definition of the sort of suits to be defended by the society: Should a member palpably negligent or culpable be defended—or only those Fellows whose suits involve blackmail?'

"Most of the state societies do defend their members in *all* civil suits regardless of the case, the actual decision resting with the Medical Defence Committee. Your committee recommend that in our society the decision of this question in any individual case be left to the judgment and discretion of the president and secretary as specified in *Article fourth*.

"3. 'Are any suits to be settled? If so, when is the society to assent to the settlement by the Fellow? Should the society ever pay anything toward a settlement?'

"It is recommended that the president and secretary be empowered to *advise* settlement whenever in their judgment such course seems discreet and wise, but that the society shall not assume any responsibility for payment of such settlement.

"4. 'Should medical experts called by an attorney in suits against our Fellows receive any remuneration from the society?'

"It is recommended that expenses only be paid by the society.

"5. 'Should a regular committee be appointed to consider the various questions arising with reference to malpractice suits, *i.e.* a committee on medical defence?'

"While most of the states do have such separate committees, it is recommended in our case that the president and secretary constitute such an advisory board as provided in *Article fourth* of the act.

"6. 'Is further advertising of the act advisable?'

"Your committee say no! Ignorance of the existence of the act is fast being abolished. Every member on joining the society is furnished with a copy of this act.

"7. 'Should all members irrespective of their means, be urged to avail themselves of the benefits of the act, or only those in straightened circumstances? Should Fellows be encouraged to give up commercial insurance and rely on our act?'

"It is recommended that all members avail themselves of our defence whenever possible, to the end that suits brought for the purpose of obtaining hush money may be deterred. Private insurance that pays damages engenders suits. Society defence discourages suits.

It is further recommended that the committee on medical education make some inquiry relating to the amount of instruction on ethics given in the various schools, whose diplomas we recognize, particularly with reference to malpractice suits and the fact that the majority of such suits have been brought as a direct result of the attitude of a fellow practitioner."

Voted, To accept the report and adopt its recommendations.

The committee appointed to draft resolutions on the death of Dr. R. H. Fitz, consisting of F. C. Shattuck, J. Collins Warren, George W. Gay, L. M. Palmer and Alfred Worcester, reported through Dr. Gay, as follows:—

Resolved, That in the death of Dr. Reginald Heber Fitz the Massachusetts Medical Society,

the medical profession, and the community suffer a grievous loss. Born in 1843, taking his M.D. from Harvard in 1868, he then passed two years in Europe, grounding himself thoroughly in the pathology of that day under Rokitansky in Vienna and Virchow in Berlin. His quality was promptly recognized and he was appointed instructor in pathological anatomy in the Harvard Medical School in 1870, succeeding Dr. J. B. S. Jackson as full professor in 1878. In 1892 he was transferred to the chair of theory and practice, resigning in 1908, when the age limit, then in force, retired him from the visiting staff of the Massachusetts General Hospital, to which he was appointed in 1887. He thus rounded out thirty-eight years as a teacher of medicine. Notable as were his services as a teacher of students and wise promoter of advance in teaching methods, his greatest services were as a teacher of the profession. In 1886, he read before the Association of American Physicians his masterly paper on "Perforating Inflammation of the Vermiform Appendix," which forced almost instant conviction that the appendix is the most frequent source of the dreaded "inflammation of the bowels," and also clearly setting forth the salient diagnostic features and surgical treatment. He also proposed the term "appendicitis," which has been universally adopted. In 1889, came his Middleton Goldsmith lecture on "Pancreatitis," again shedding a flood of light upon ill-understood conditions. The paper on pancreatitis showed in an equally high degree with that on the appendix the application to clinical medicine and surgery of accurate pathological knowledge, painstaking collection and sifting of the literature of the subject, and logical reasoning therefrom.

It is safe to say that no physician in recent times did more than Fitz to transfer treatment from the physician to the surgeon. And yet he was always conservative as regards operation and saw clearly the dangers inherent in the *furor secandi* sired by the safety of clean surgery. In his anniversary discourse before the New York Academy of Medicine in 1901 on "Some Surgical Tendencies from a Medical Point of View," and again in his presidential address to the Congress of American Physicians and Surgeons in 1907, entitled "The Border Land of Medicine and Surgery," he applied the curb to the excess of operative zeal. The character of his work and the rapid diffusion of knowledge secured merited recognition while he was still in his prime, and he was fortunate in enjoying for years the appreciation of his notable services to mankind.

Chief among the many honors which came to him were the presidency of the Congress of American Physicians and Surgeons and the Honorary LL.D. from Harvard. He was always ready to serve the Massachusetts Medical Society in any capacity, and was orator in 1894, choosing as his subject, "The Legislative Control of Medical Practice," and treating it with his characteristic thoroughness and lucidity.

He was a firm and loyal friend, with a warmth of heart best known to those who knew him best.

The society and the profession of medicine have lost a shining light; humanity has lost a friend. Let us take his example to heart, and strive, each according to his capacity and opportunity, to emulate, though we cannot hope to rival it.

Voted, To accept the resolutions and send a copy to the family of Dr. Fitz.

The secretary read a communication from the New England Sub-Committee on Obstetrics of the American Association for the Study and Prevention of Infant Mortality, as follows:

The New England Sub-Committee on Obstetrics of the American Association for the Study and Prevention of Infant Mortality called a meeting on December 20, 1913, at the Boston Medical Library to talk over informally the midwife situation in Massachusetts and whether or not it was advisable to act in favor or against any possible legislation which may be introduced into the Legislature of 1914 in the State of Massachusetts. There were asked to this meeting representatives of the medical societies, philanthropic societies interested in the care of pregnant women, social workers, certain physicians, especially from the mill cities in the eastern part of the state. There were about thirty people present at the meeting, Dr. H. W. M. Bennett of Manchester, New Hampshire, told of the workings of the Manchester City Mission where a group of public-spirited physicians with the help of certain philanthropic individuals in the city have done practically all the obstetrics among the poor in the city of Manchester, which is largely a mill town. Dr. Arthur B. Emmons spoke of the work of the Maverick Dispensary at East Boston, where there were no students but the work is carried on by two physicians who give their services for five dollars for each case. Many questions were asked of the workings of the City Mission in Manchester and the Maverick Dispensary in East Boston, and it was made clear that it was not necessary to have students in the community in order that the poor of the community may obtain good obstetric service. After a free discussion, Dr. Emmons brought before the meeting a set of resolutions which, after discussion and some changes, were adopted as follows:

Whereas, one hundred and fifty or more women are illegally practising as midwives, and

Whereas, a proportion of the immigrant population are utilizing these midwives to obtain obstetric services as shown by various investigations, and

Whereas, this problem has been met successfully in at least one industrial city of New England having a large immigrant population, and

Whereas, private organizations in Boston are meeting the necessity among a portion of its immigrant population, and

Whereas, the required standard of obstetrical proficiency for admission to practice of medicine in the State of Massachusetts is admittedly low, and

Whereas, a movement is on foot aimed to put the midwife in the immediate future on an equal standing with the physician before the law, Therefore

Be it resolved that this meeting, held under the auspices of the New England Sub-Committee on Obstetrics of the American Association for the Study and Prevention of Infant Mortality, urge the Massachusetts medical societies, through their geographic units, to organize immediately to meet the above situation in their respective districts by providing obstetric service especially to the large immigrant class, and

Be it resolved that the State of Massachusetts through the Board of Registration in Medicine be urged to amend its laws so as to bring them into conformity with modern medicine.

Be it further resolved that a copy of these resolutions be sent to the Board of Registration and the Massachusetts medical societies.

This was discussed by Dr. Cook, and it was

Voted, To accept the report.

The president nominated Dr. J. W. Stimson as councillor and supervising censor for the Worcester North District Society, to fill a vacancy, and he was appointed.

The resignation of Dr. F. W. Goss as a member of the Committee on Membership and Finance was read by the secretary. Dr. Gay said that this communication separates an old officer from the committee, and moved that in commemoration of his long and faithful service a rising vote of thanks be extended to Dr. Goss for his service.

The motion was put and all rose.

The president nominated Dr. Alfred Worcester to fill the vacancy made by Dr. Goss' resignation, and he was appointed.

Adjourned at 1.45 p. m.

WALTER L. BURRAGE, *Secretary.*

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirtieth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, February 27, 1914, at 8.15 P. M.

The following papers will be read:

1. "Bacillus of Contagious Abortion," Dr. Marshall Fabyan.
2. "Inclusion Bodies in Scarlet Fever," Dr. Lewis B. Hill.
3. "Under what Conditions is the Diagnosis of 'Tuberculosis' in Children Justified?" Dr. John B. Hawes, 2d.
4. "A Voice Sign in Chorea," Dr. Walter B. Swift.

Light refreshments will be served after the meeting.

DR. CHARLES A. PRATT, *Pres.*
DR. FRITZ B. TALBOT, *Sec'y.*

BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, Feb. 24, 1914, at the Nutrition Laboratory of the Carnegie Institution of Washington, Vila Street, Boston, Mass., at 8.15 o'clock. The meeting will be conducted by the staff of the Laboratory.

Papers will be presented as follows:—

Mr. T. M. Carpenter, "Effect of Dead Space in Respiration Apparatus." (15 minutes.)

Dr. Francis G. Benedict, "Demonstration of Respiration Apparatus in Rabbits." (10 minutes.)

Dr. Raymond Dodge, "Quantitative Technic for the Knee-jerk." (15 minutes.)

Mr. H. L. Higgins, "The Effect of Posture on the Alveolar Air." (15 minutes.)

Dr. H. M. Smith, "The Measurement of Pulse-Rate by the Oscillograph." (10 minutes.)

Dr. Francis G. Benedict, "A Thirty Day Fast." (15 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer,*
Harvard Medical School.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, Feb. 24, at 8 P.M. sharp.

Business. Communication: "Personal Identification," illustrated. Gustaf Gustafson, Secret Service Bureau.

Refreshments after the meeting.

BRADFORD KENT, M.D., *Secretary.*
798 Blue Hill Ave., Dorchester.

MASSACHUSETTS GENERAL HOSPITAL.—A surgical meeting, open to the medical profession, will be held at 8.15 p. m., on Friday, Feb. 20, 1914, in the lower amphitheatre of the out-patient department. Entrance on either Blossom or Fruit Streets.

The following papers will be presented:—

"Cancer of the Uterus," by Dr. Farrar Cobb.

"A Study of Bloood-Pressure in Hysterectomies and Other Radical Operations," by Dr. Harold Giddings.

APPOINTMENTS.

DR. WILLIAM C. BRAISTED, medical inspector U.S.N., has been promoted and confirmed surgeon-general and chief of the bureau of medicine and surgery of the Navy Department.

RECENT DEATHS.

DR. CHARLES E. SMITH of Whitesboro, Oneida County, N. Y., a graduate of the Albany Medical College in 1858, died from cerebral apoplexy on Jan. 28. For twenty-three years he had been postmaster at Whitesboro.

DR. CHARLES E. FROELICH, who died on Feb. 1 at Hartford, Conn., was born in 1843. He received the degree of M.D. in 1870 from the University of Copenhagen, Denmark. He had practised his profession in Hartford since 1873.

DR. A. F. LE DOUBLE, who died recently at Tours, France, was born in 1845. He was professor of anatomy at the Tours Medical School, and was noted especially for his work on the variations of the muscular system and of the bones of the skull, face and spine.

DR. EDWARD PAYSON FOWLER, who died of pneumonia on Jan. 29 at Pelham Manor, N. Y., was born in Coshocton, N. Y., on Nov. 30, 1834. He received the degree of M.D. in 1855 from the New York Medical College and practised his profession in New York City for over 50 years. He was a member of the New York Academy of Medicine, the New York Neurological Society, and the Medical Society of the County of New York. He is survived by his widow, by two daughters, and by one son.

DR. G. LLOYD MAGRUDER, who died of heart disease recently at Washington, D. C., was born in 1848. He was at one time dean of Georgetown University Medical School. He is survived by his widow, by one daughter, and one son.

DR. DANIEL C. LOGUE, who died on Feb. 3 in Bellmore, L. I., was born at Otisville, Orange County, N. Y. in 1832. After graduating from Wesleyan University, he obtained the degree of M.D. from the New York Medical College. At the outbreak of the Civil War he entered the naval medical service. He became surgeon of the *Monitor*, and is believed to have been the last survivor of her famous engagement with the *Merrimac*. After the close of the war, he settled at Brooklyn, N. Y., where he continued active in the practise of his profession until his retirement in 1900. He is survived by two sons, both also physicians.

Original Articles.

A STUDY OF SOME TYPES OF DISTURBANCE OF THE STOMACH AND INTESTINES ASSOCIATED WITH ADHESIONS INVOLVING THE INTESTINAL TRACT, AND THEIR TREATMENT.

By Henry F. Hewes, M.D., Boston.

The influence or function of adhesions involving portions of the gastro-intestinal tract, as a cause of pathological conditions or disturbance of health and function in the body, has always been something of a problem in medicine.

That adhesions, the result as a rule of some inflammatory affection in the abdominal cavity, as appendicitis, or ulcer, or cholecystitis, or tuberculosis, or the result of surgical operation upon the abdominal organs, do cause such disturbance of the bodily welfare with the production of symptoms, has long been a well recognized fact. The extent to which this pathological factor acts as a cause of disturbance, has, however, only recently become well understood, when through the perfection of the method of investigation of the stomach and intestines by the x-ray under the administration of bismuth, it has become possible to diagnose the existence of adhesions and the resulting mechanical effect of these upon the anatomy and physiology of the gastro-intestinal organs, without actually inspecting the abdominal cavity by operation or post-mortem examination.

As a result of the study of this subject under these conditions we have gained much light in regard to the manner of action of this pathological factor as a cause of bodily disturbance, and of the symptomatologies and clinical pictures which are associated with it. This manner of action of adhesions involving the stomach or intestines is very varied.

The primary action of adhesions appears to be either actual constriction or fixation, binding down to the peritoneum or to other organs, of a portion of the gut. As a result of such action we may have anatomically an actual narrowing of the lumen of the gut at the point of contact, or a kinking or looping, at this point or above it or below it. Even actual strangulation of gut or marked interference with blood supply may occur. Or we may have as a result of such constriction or fixation, a drawing of a portion of the stomach or intestines out of normal position, with the production of an abnormal bending or kinking, or simply a functional disability of the gut, in some portion far removed from the actual location of the adhesions.

With such distortion of the gut we get physiologically a disturbance of normal peristalsis and of the passage of the contents of the gut, in the portion affected, the portion where the constriction or kinking, or drawing out of position, whether at the point of adhesion or removed from it, occurs. Such a condition may give rise to the retardation or stasis of stomach or intestinal contents, above or even below the region where the physiological action of the gut is abnormal, or simply to accumulation of gas in portions above the region, or in other cases to increased rapidity of movements of contents by and below the point affected. Associated with the condition such symptoms as pain and distress, distention, constipation diarrhea, flatulence, vomiting, and marked nerve disturbance, or disturbance of nutrition, or possibly symptoms of so-called auto-intoxication may occur.

This constricting or fixing, or drawing out of position of portions of gut, in addition to the actual mechanical distortion of gut which is affected, appears also, in some cases, either as a result of some mechanical action, or by the abnormal functional conditions which are produced, as stasis of contents in the intestine, etc., to give rise to disturbances in the integrity or function of the gastro-intestinal tract, through the agency of reflex action. Thus in cases, spasm, or abnormality of peristalsis of portions of gut, stasis of contents or gas, may occur in portions far removed from the actual seat of lesion without the finding of any anatomical variation in the portion where the function is disturbed. For example, disturbance of the stomach, with imperfect emptying of contents, may occur in cases where no distortion of the stomach or duodenum is present, and where the only abnormality found is adhesions about the cecum and ileo-stasis of contents.

With the great diversity in the location of adhesions involving the gut, and in the forms of distortion which they cause, and with the complicated manner of action of these abnormal conditions upon function, it is clear, *a priori*, that the symptomatologies found in association with this condition of adhesions causing disturbance in the body, must be very varied. As a matter of fact they are, running well through most of the types of symptomatologies of gastro-intestinal disturbance, and of various types of nerve disturbance as well.

Many cases of this kind have, for example, the one symptom of constipation with perhaps some associated abdominal discomfort. Others with or without constipation complain chiefly of flatulence, accumulation of gas, distention, of all-gone sensation and depression.

On the other hand, some cases have violent pain and colic, and tenderness, suggesting appendicitis, or duodenal ulcer, others have severe diarrhea, others gastric symptoms of distress in the epigastrium, belching of gas, vomiting.

The symptomatologies depend to some extent doubtless upon the location of the actual lesion, or the point where the actual distortion of the gut, or functional disturbance induced by the lesion, occur. Exclusively gastric symptoms,

for example, occur more frequently where the adhesions are located near the stomach or high up in the intestine. However, they may occur where the actual adhesions are at the cecum, the fixation at the point and the dragging out of position of the gut resulting, causing distortion at the pylorus or in the position of the stomach. Or they may occur here apparently simply as a reflex from conditions lower down.

Lesions involving the same portion of intestine may in two cases give very different sets of symptoms. Thus some cases with fixation or constriction of the cecum, may have constipation, others may have alternating constipation and diarrhea, others continuous diarrhea, all depending partly upon the actual functional disability which the lesions set up, as retarded peristalsis with stasis in one, extra peristalsis or spasm of the ileo-cecal valve in another, and partly doubtless upon the nervous temperament and constitutional character of the individual affected.

A majority of these various symptomatologies found in association with adhesions, or distortion or disturbance of the gastro-intestinal tract due to adhesions, are clearly in no sense pathognemonic of this condition, since similar symptomatologies are found in association with other pathological or functional disturbances of the body. For example, constipation with some sign of abdominal discomfort, perhaps the most common symptomatology of adhesions, is a frequent finding of purely functional disturbance of the intestines, or of various conditions of organic disturbance other than adhesions. The continuous diarrhea often seen with adhesions is a symptom of functional disturbance, inflammatory colitis, improper assimilation of food. Alternating constipation and diarrhea is a common symptom of mucous colitis and of nerve disturbances. The stomach symptoms seen with adhesions are often similar to those found in nervous dyspepsia, in some cases of ulcer of the stomach and duodenum, and in gall stones.

Diagnosis or probable diagnosis that the symptoms in any given case are the result of adhesions can be made only by supplementing the study of symptoms with an x-ray examination, and in case of a positive finding, an exclusion of definite evidence of other conditions capable of causing similar symptomatologies.

Treatment of conditions of disturbance due to adhesions depends in each case upon the exact character of the pathological lesion or functional disturbance caused by the adhesion. In many cases complete relief of symptoms may be secured by a proper system of medical, as distinguished from surgical, treatment. In other cases surgical interference alone can produce a cure.

Since adhesions and their results are a common cause of conditions of disturbance, and since we possess successful methods of treatment of many of the conditions having adhesions as the primary cause of disturbance, and since the treatment is special in these cases, depending upon an understanding of the exact conditions present, it is essential, that in all cases of gastro-intestinal disturbance which cannot be accounted for by the accurate diagnosis of the existence of other pathological conditions, the possibility of adhesions as the cause of symptoms should be considered, and investigated by proper methods.

As an illustration of this subject, the influence of adhesions as a cause of conditions of disturbance of the stomach or intestines, and of the character and efficacy of special forms of treatment for the relief of these disturbances, I give the records of some cases, selected from the many cases of this type of malady which have come under my observation.

CASE 1. Male. Age 35. For at least 25 years the patient has been subject to frequent attacks of diarrhoea. The spells of looseness last from several days to two or three weeks. The number of movements vary. As a rule there are three or four a day—always very loose. Movements are of brown color. Mucus or blood have never been noticed by the patient. There is pain or cramp at times before a movement. At other times during the attack there may be a dull disturbed feeling in the abdomen. Attacks are more frequent in summer but occur throughout the year.

Food stuffs with large unutilized residue, as fruits and green vegetables always promote diarrhoea—but the trouble may occur on any diet. At times the patient has gone a month without an attack. He may have spells of one regular daily movement, without drugs, for a period of weeks between attacks. Then comes a period of constipation and then an attack. At other times he is constipated throughout the interval.

For the last three years the amount of diarrhoea, and of intestinal discomfort when not having diarrhoea, has been much increased. In 1911 the patient was operated upon for the removal of his appendix. Evidence of the previous inflammation of the appendix was found. Since the operation there has been just as much trouble as before.

There have never been any symptoms of dyspepsia, such as distress in upper abdomen after food, eructations of gas, etc.

The patient loses and gains weight by times but thinks he is always under weight.

Physical Examination: Condition of nutrition good. Haemoglobin 100. Heart and lungs normal.

Examination of faeces, obtained during a spell of looseness, shows a loose unformed stool, not watery, of brown color. No mucus or pus present. Blood test negative. Food elements all increased in amount over normal but no excess of any one form, when patient was on a test diet, as the Schmidt diet. The faeces were excessively acid.

X-ray examination with Bismuth shows

1. No abnormality as to stomach or duodenum.
2. Fixation of caecum to abdominal wall.
3. Marked 9 hour ileo-stasis, some 24 hour stasis in lower ileum, caecum, and ascending colon.
4. The transverse colon in its first portion shows a marked downward loop.

The x-ray report reads: "marked ileo-stasis with fixation of caecum by adhesions and an abnormality

of the transverse colon suggesting the possibility of kinking at this place."

The record of the case with the clinical history of alternate constipation and diarrhoea, the finding of ileo-stasis, of adhesions fixing the caecum and of the abnormality in the colon, suggests the following theory of the case.

As a result of a tendency to stasis of contents in the intestine, due probably to the fixation of the caecum and the abnormality in the anatomy of the colon, the intestines are not freely emptied regularly. The backed up intestinal contents, either by fermentation and consequent irritation of the gut, or by reflex action coming as a result of the abnormal quantity present, induces, at periods, increased peristalsis to relieve the condition, and periods of diarrhoea follow.

Acting upon this theory of the case the patient was placed under the regular administration of agar agar powder, mixed with small portions of calcium carbonate, with the idea of keeping the bowels regular without the use of cathartic drugs, that is to prevent the gradual backing up of the intestinal contents which in the past has preceded the diarrhoea attacks.

The diet used consisted of meat, fish, eggs, bread, potato, macaroni, rice, simple cereals, peas, custard, ice cream, eliminating foods with large refuse as fruits or green vegetables.

This system was installed June last. Since that time the bowels have moved daily with good full formed movements. There has been but one period of looseness, occurring about two weeks after the system was started, and this lasted but two days.

Otherwise there has been a complete disappearance of symptoms. This period of five months of freedom from symptoms is much the longest that the patient has ever had, and the result of the study of the case has so far indicated that the malady, or abnormal condition, can be controlled by this method of treatment.

CASE 11. Male. Age 55. In 1886 the patient had a bad attack of diarrhoea in the summer lasting two weeks. Since that time he has been subject to occasional periods of diarrhoea lasting for a few days. These periods he has found as a rule follow a few days of constipation. For most of the time however between 1886 and 1910 his bowels have been regular and he has suffered only from the occasional attacks of constipation and diarrhoea coming perhaps three or four times a year.

In 1910 he was operated upon for the removal of the appendix. The organ was found to be acutely inflamed with some serum in the peritoneal cavity. Since this operation he has suffered almost constantly from constipation and has had to use drugs regularly for his bowels. There has been the same history of an occasional spell of looseness independent of the use of cathartics. In this period he has suffered at times from dull distress in his lower abdomen.

In 1911 in July he had a severe attack of diarrhoea lasting three weeks which was called colitis by his physician. He had several short attacks of diarrhoea up to October. From October, 1911 to July, 1912 he was constipated with rare short periods of diarrhoea. Since July, 1912 he has had alternate periods of constipation and diarrhoea, and marked intestinal discomfort much of the time. That is he has been constipated for a period of 2—3 weeks then had a few days of diarrhoea, then another period of constipation.

In the diarrhoea periods the faeces have contained much mucus. No blood noted.

Sept. 1st in London he had an x-ray investigation. The report of this examination is as follows.

"Marked ileo-stasis and caecal-stasis. Evidence of an abnormal condition of the walls of the caecum. Evidence of the existence of adhesions in the region of the caecum."

In London where his symptom at the time was constipation with much intestinal discomfort, he was placed on a treatment of paraffin oil and senna, used daily, and he has been on this treatment since. Under this regime he has had continual looseness of the bowels, one to three daily movements, and much discomfort.

He has not noticed that diet has much effect upon his trouble in the past.

Examination Nov. 8, 1912.

Physical Examination Normal. Haemoglobin 100. Examination of faeces—stool very loose and filled with gas bubbles, mucus present, no pus. The faeces were very acid. Blood test negative.

In the early history of this case we find a tendency to an occasional period of constipation followed by a day or two of diarrhoea. For most of the time the bowels were normal.

After the appendix operation constipation became a continual trouble with an occasional loose spell. It seems probable that this condition of constipation was due principally to the effect of the adhesions about the caecum following the appendicitis, or the operation for the removal of the appendix.

In recent periods with the more marked constipation, the diarrhoea spells have been much more severe and the amount of intestinal discomfort much increased.

During the last months there has been continued looseness, due probably to the constant use of cathartics, and continued intestinal discomfort.

As a result of the study of this case the theory was adopted, as in the first case, that the spells of diarrhoea were due primarily to the constipation, and tendency for the contents to collect or stagnate in the intestines. The primary cause of the trouble was in this case adhesions and injury to the intestinal wall.

The first step in the treatment of this case was the removal of all cathartics, under the use of which the patient had not prospered, to study the case under natural conditions. Injections of oil were given to promote defecation.

Under this regime the patient would go for several days with regular movements, then there would come a day of much intestinal discomfort followed by explosive diarrhoea. The faeces passed on these occasions were very foul. No one predominant form of bacteria could be isolated. Always a large growth of colon bacillus was present. An excessive growth of the gas bacillus was present.

Apparently even with the enemata there was the same tendency to stagnation of contents high up, which characterized the case, less marked with the enemata but still present, and the following intermittent periods of diarrhoea.

The patient was then placed upon regular administrations of agar agar powder and calcium carbonate.

Under this regime large daily defecations of formed faeces occurred, the occurrence of diarrhoea spells became less frequent and finally ceased. The

patient is now going upon doses of agar alone, and is practically without symptoms for months at a time.

These two cases, with evidence of the existence of adhesions and abnormality of the gut in the region of the cecum and first portion of the colon, show a marked similarity in their clinical character. In both we have as the principal symptom the intermittent occurrence of periods of constipation and diarrhea. In both the symptoms yielded to the same form of treatment devised to prevent the occurrence of the stagnation of the intestinal contents by promoting regular peristalsis all along the line.

The clinical findings in the two cases differed, however in one important feature. In number one the examination of the feces never revealed any abnormality save the looseness of the stools, with the evidence of excessive fermentation. In number two, however, mucus was always found present in the earlier examinations of the feces. In other words, the second case had some resemblance to the condition known as mucus colitis, in which as you know, the symptoms are frequently of a type similar to those seen in this case, that is, symptoms of alternating constipation and diarrhea. This observation on this case is one of many which tend to substantiate the well- known theory that many conditions described as mucus colitis are in reality symptom-complexes representing the result of the existence of adhesions involving the colon.

This type of symptomatology seen in these two cases represents one of the most common clinical pictures associated with adhesions involving the intestinal canal. In cases with this type of symptoms the lesion is as a rule in the region of the caecum or colon, or possibly the ileum. The cases come to the physician complaining, as a rule, of the diarrhea. But it is the constipation which must be treated, even in the cases which do not show the ordinary sign of constipation, that is, cases which have a regular daily movement of the bowels.

Before instituting treatment in these cases the physician must first establish the fact that adhesions, or distortion of the intestine, or caecal- or ileo-stasis are present. For the symptomatology alone does not necessarily mean this condition. It may occur from other causes where the specific treatment used here is not efficacious, as, for example, in some cases of actual colitis, in conditions of neurosis or debility, or from improper diet. Once assured that the lesion in question is present as a probable cause of the symptoms, the medical treatment described should be instituted. If this fails, operative procedures for cure may be considered.

As regards the treatment of cases of this type, that is, conditions of adhesions affecting the gut giving this special type of symptomatology of alternating constipation and diarrhea, it may be said that the general principle is the promotion of undelayed progress of the intestinal contents throughout the course of the alimentary canal, and the consequent prevention of stasis or stagnation. The details of the treatment are not necessarily in all cases the same. In these two cases the agent which was used successfully to promote regularity of action of the intestines was agar agar. This acts primarily by giving bulk to the intestinal contents and thus promoting peristalsis by natural means similar to the action of plentiful food residue. It does not act as a cathartic drug in the ordinary sense of the term, that is by stimulating peristalsis, by unnatural action upon the walls of the intestine, or by causing an unnatural or liquid condition of the feces.

Promotion of active peristalsis or excessive movement of the intestinal contents by means of real cathartics is not in my experience a successful means of cure in these conditions; at all events not as successful a means as the use of agar or of some therapeutic agent acting along similar lines. In the first place they are apt to cause continued looseness even if ileo-stasis is prevented. Secondly, they act more upon the colon than upon the region of the lesion. Case two, as you remember, had been subjected to a course of cathartic administration for a considerable period before I saw him, with no improvement in the condition.

The same statement may be made in regard to the use of enemata for the treatment of this condition. These agents may prevent constipation in the sense that they ensure regular defecation. But they do not in all cases promote regular movement of the intestinal contents in the region of the lesion, which is frequently too high up to be affected by them. They simply clear out the lower bowel, leaving the ileo-stasis as before. They may work where the adhesions or dilatation of the gut is situated in the transverse or descending colon. But at best they are a cumbersome and artificial means of treatment as compared with the agar.

Many cases of this type do not show actual constipation in the sense of absence of a daily movement. The constipation is higher up than the colon.

In the considerable number of cases of this type which I have treated successfully by medical means, I have found the administration of agar agar the most universally serviceable of any one means of achieving relief of symptoms. It can be taken continually over long periods of time without necessity for increase or dosage such as is seen in the use of cathartics, and cannot be said to inculcate a habit save in the sense that the use of foods with large residue, fruits, etc., may be said to cause a habit. Often it may be necessary at the start of treatment to use a cathartic or enema, but this should be discontinued after a few days.

In some cases of this condition other means of promoting regular intestinal action are equally successful, or even more successful. Some cases show complete relief under the use of Russian oil or other paraffin oils; others do well under a

system of massage or of exercises devised to promote action of the abdominal muscles. In some cases a combination of all these agents is necessary.

A considerable number of these cases do not yield to any form of medical treatment. In such cases surgical interference for the removal of adhesions, or short circuiting of the intestine may result in cure.

Case 3 represents another type of intestinal disturbance associated with this same underlying condition of adhesions involving the gut.

A. M. Age 25. Date of visit March 20th, 1913. For 8 to 10 years the patient has been troubled with diarrhoea. The trouble has been present to some extent almost continually during the time. Most of the time there are three to five movements daily, loose in character. There is no special pain associated with the trouble save some colic just before a movement, but often there is a sense of discomfort in the lower abdomen associated with excessive rumbling of gas.

Occasionally the patient will have a period of three to five days when there is but one movement daily, sometimes a formed movement. Very rarely this has occurred for as long a period as two weeks. Following such periods the patient almost invariably has a period of excessive diarrhoea starting with fifteen to twenty movements daily and gradually getting down to three or five a day. The periods of looseness last three weeks to two months. Rest in bed in such periods may reduce the number of movements to one or two a day but then diarrhoea always returns upon resumption of regular manner of living. The patient loses and gains weight in turns but never weighs as much as she should. She is not very strong but her general condition is not as bad as might be expected with such a history. She is able to work except in the periods of very severe diarrhoea. There is no history of symptoms at any time suggesting an attack of appendicitis. No typhoid.

Examination: The patient is thin but fairly nourished. Haemoglobin 90%. Blood examination otherwise negative. Temperature normal. Pulse 80. Heart and lungs normal. Abdominal examination negative except for a slight tenderness in the right iliac fossa.

Examination of Faeces. Stool loose, about the consistency of porridge. No mucus, pus, or blood present. Blood test negative. Food elements present in increased amount but no excess of any one form, suggesting a specific fat or cellulose diarrhea.

The patient was advised to have an x-ray examination of the abdomen. In the meantime she was placed upon a regime consisting of a low refuse diet consisting of meat, and toast without butter, and the administration of bismuth. Under this regime, according to reports by letter the condition continued unabated. For a day or two under the bismuth there would be one daily movement but this was always followed by excessive diarrhoea. For some reason the x-ray examination was deferred.

April 10th the patient reported that for two days she had had a good deal of pain in the right iliac region and some nausea, but no vomiting. The bowels were loose as usual.

Examination at this time showed marked tenderness in the right iliac fossa with, however, no palpable mass. Temperature 100. Pulse 100. Blood showed a white count of 12000 per cmm.

The patient was placed in bed. The temperature remained between 99 and 100.5 for four days, then subsided to normal. The tenderness decreased but never wholly disappeared. This represents the first record of any disturbance suggesting appendix trouble in the history of the case.

Following this the x-ray examination with bismuth was made. It showed evidence of adhesions in the region of the caecum. The caecum was firmly bound down and immovable. The bismuth could be seen by the fluoroscope examination to pass freely back and forth through the ileo-caecal valve as if the valve were continually open. There was no ileo-stasis and no marked caecal stasis.

The explanation of this case as deduced from this record appeared to be the following:—As a result of an attack of appendicitis which occurred perhaps 8 to 10 years ago and was unrecognized, adhesions were formed binding the caecum and so affecting the gut that the ileo-caecal valve was not properly closed. April 10th, 1913, a slight recurrence of inflammation in this region occurred. As a result of this abnormal condition in the region of the caecum the contents of the intestine passed continually through the valve in both directions, thus keeping up a nearly continuous diarrhoea.

The patient was operated upon June 25th. The finding at operation was as follows:

A nearly obliterated appendix bound down by adhesions. Adhesions about the caecum binding it firmly to the peritoneal wall and apparently pulling upon the region of the ileo-caecal valve in such a manner as to keep the valve open.

The appendix was removed and the adhesions were separated to obviate all distortion and fixation of the caecum. Since operation there has been up to the present date, Jan. 1, 1914, complete freedom from diarrhoea.

This case differs from the first two in that the symptomatology was one of continuous diarrhoea rather than alternating diarrhoea and constipation, and that physiologically excessive peristalsis of the contents through the ileo-caecal region, rather than retardation, was present.

This case showed a symptomatology, continuous diarrhoea, less common in association with adhesions affecting the gut, than that found in the first two cases, alternating constipation and diarrhoea, but still not uncommon as an associate of this condition.

Apparently the effect of the adhesions in the case, as revealed both by x-ray examination, and examination at operation, and as suggested by the symptomatology, was to increase the activity of the movement of the intestinal contents, in marked contrast to the condition in the first two cases, where the effect was to retard the proper movement of the contents. Whether this result was due to actual distortion of the valve, or to spasm or reflex action I cannot say. At operation the valve appeared to be open.

I have seen several cases of this type showing an open ileo-caecal valve as revealed by x-ray examination, both under administration of bismuth by mouth, and by the use of bismuth enemata. Some of them show caecal- and ileo-stasis of bismuth in spite of the open valve, while some, like this case, show no stasis. Most

of them showed symptomatology of more or less continuous diarrhea except when kept in bed, as contrasted with the alternating constipation and diarrhea, or the continued constipation seen in the majority of cases of adhesions affecting the caecum or colon.

CASE 4 is an example of adhesions involving the intestine, giving a symptomatology of stomach disturbance, rather than intestinal disturbance as seen in the cases already reported.

Aged 55. Date of visit October 26, 1912. For a year or more the patient has suffered from dyspepsia. Two or three hours after meals he has a gnawing sensation in the pit of the stomach, associated with the belching of gas. There is no acute pain, no pyrosis or vomiting, occasional heartburn. The distress comes late in the forenoon, in the late afternoon, and sometimes at bed time, also at times in the early morning before breakfast. The taking of food, even of a few crackers, always relieves it. There is no distress immediately after meals, in fact, as stated, meals relieve symptoms. The spells of trouble are intermittent. He may be entirely free from symptoms for four days to a week and then have symptoms daily for one to three weeks. The bowels are regular. There is no appreciable loss of weight, but the patient has become very nervous and does not feel up to the mark as before this trouble began. There is no history of a former attack of appendicitis or of typhoid.

Examination. Well nourished. Haemoglobin 100%. Heart and lungs normal. Abdominal examination normal.

The fasting contents of the stomach obtained by tube twelve hours after the previous meal, a full dinner, gave the following findings: Amount 55 cc. Clear and watery, with slight sediment consisting, as seen under the microscope, of a considerable number of starch granules and fat drops. Free HCl was present. Blood test negative. Test meal contents obtained one hour after Ewald meal showed a total free HCl of 0.28%—that is, an excessive amount of acid.

The faeces gave a negative blood test upon several occasions. Stools were of normal size and character.

The results of this special examination of the stomach, together with the symptoms, suggested the presence of some lesion causing some constriction or spasm of the gut at or near the pylorus, or in the duodenum. The symptoms could have gone perfectly well with a simple hyperacidity, but the presence of 50cc. of acid contents, a hypersecretion, with an abnormal amount of food residue, as microscopically observed, a slight stasis in the stomach, suggested the existence of either an old ulcer in the duodenum or of some other cause, resulting, either by actual constriction or by reflex action, in the undue accumulation of gas, and possibly at times, of acid contents in the stomach.

X-ray examination showed

1. A marked six hour bismuth residue in the stomach.
2. Pyloric sphincter and duodenal cap well defined but dilatation of upper portion of duodenum apparent.
3. Nine-hour ileo-stasis, and evidence of adhesions about caecum.

From the combined findings an absolute diagnosis of some process causing a tendency to backing up of contents in the stomach, and a probable diagnosis of old duodenal ulcer as the underlying process, was made. Medical treatment was tried for a considerable period, as the tendency to stasis in the stomach was so slight that it was hoped it could be overcome by a proper method of dieting and hygiene. Improvement in symptoms but not cessation occurred. The case was then operated upon.

The findings at operation were:—

1. Adhesions between the duodenum and right wall of the abdomen. Some dilatation of duodenum above adhesions. No ulcer was found.

2. Evidence of a former appendicitis with adhesions about cecum.

The patient at the present time, six months after operation, has a complete absence of symptoms.

Note that in this case there was in the clinical findings, the findings by tube and the x-ray findings, evidence of disturbance of the function of the stomach in emptying its contents within the normal period, although by the finding at operation it was found that the adhesions present caused no actual obstruction of the pylorus or pulling or distortion of the stomach.

This is an example of what I have already described as the reflex action, of adhesions involving the gut, the setting up of disturbance of function, stasis and hyperacidity, and of subjective symptoms, in a portion of the gut in a region removed from the actual point of the adhesions, with no actual distortion present in the former region.

Six-hour gastric stasis of bismuth, less commonly twelve-hour stasis of food contents, are not infrequently found in cases where the adhesions are confined entirely to the cecum. In some cases such adhesions, though located far from the stomach, do by their dragging of the viscera out of position, cause some actual distortion of the stomach, or disturbance of its function, by actual mechanical effect. It is thought by some that ileo-stasis with consequent dragging down of the viscera by the load may sometimes do this. But in this case, as in several others, the stasis in the stomach appears to have been reflex from the action of the adhesions upon peristalsis lower down.

CASE 5. F. P. Age 38. Date of observation Nov. 9, 1912.

History. Five years ago the patient was operated upon for an acute attack of appendicitis. About one year after this he began to notice a heavy feeling in the epigastrium coming soon after eating. This was not present every day but bothered him off and on. One year ago the stomach symptoms became much more constant and troublesome. Distress soon after eating was often very marked. There was accumulation of gas in the stomach with distention and relief by belching at times. Six months ago the patient was jaundiced for a period of two months. At present he suffers from dyspepsia most of the time, is afraid to eat, and has lost fifty pounds

in weight. His bowels are regular. He has never vomited.

Examination. Haemoglobin 90%. Fasting contents of stomach, 10 cc. No food. No blood. Inflation shows size and position of stomach normal. Test meal contents. Free HCl=.05%.

X-ray examination. Peristalsis of stomach normal. No 6-hour bismuth residue. Caecum firmly held down by adhesions. Stasis of contents in ileum and in caecum. Operation showed adhesions fixing the caecum, adhesions extending from caecum and ascending colon to gall bladder and involving the region of the common duct and portal vessels.

January 1, 1914. Since the operation the patient has been free from symptoms.

In this case the symptoms, with the exception of the jaundice, were mostly those suggesting stomach disturbance. No evidence of actual stasis in the stomach, as in the last case, was found. It is true that the symptoms of distress, and of accumulations of gas, complained of by the patient, and laid by him in his stomach, may have been pain and accumulation in the intestine. But at all events the history was one of stomach disturbance.

SERODIAGNOSIS OF PREGNANCY. A REVIEW.*

By A. K. Paine, M.D., Boston.

One of the striking recent advances in obstetrics has been the formulation of the serodiagnostic test of pregnancy.

Needless to say, the diagnosis of the existence or non-existence of pregnancy is a factor of considerable importance in obstetrics, and it is true, as with many other things in the practice of medicine, that its solution depends almost entirely on individual judgment, subject to all the uncertainties and errors which attend such efforts. That individual skill and much experience increases the percentage of opinions that later prove to be correct is also true, but opinions only they remain until proved or disproved.

The wonderful advances made during the last two decades in the practice of medicine are the result largely of the illumination here and there of its mysteries by the bright light of scientific accuracy emanating from the modern medical laboratory. That this irregular illumination discloses complexities beyond even our imaginations only emphasizes the utter darkness in which we have struggled.

For the first time it seems a possibility that the subject under discussion may be lifted from the plane of conjecture to that of accuracy. Various attempts have been made to develop some method whereby the diagnosis of pregnancy could be accomplished by enlisting the aid of the laboratory; the antitrypsin test as carried out by Franz, Jarish, Rosenthal and Jochmann was one of these, a marked increase in the antitrypsin index indicating pregnancy, but as such an increase is also observed in a great number of diseases and disorders, its value as a diagnostic aid was nil. The complement fixation test of Fieux and Mauriac is open to the same objections, while the epiphanin reaction of Mosbache and the adaptation of the miostagmin reaction by Julchiero are impracticable and not confirmed.

It remained for Emil Abderhalden, director of the Institute of Physiology at the University of Halle, to offer a method whereby the diagnosis of pregnancy may eventually become a procedure of scientific accuracy.

This procedure is based on certain facts which have been disclosed by researches in the biochemistry of protective ferments. It has been demonstrated that substances containing elements common to body tissues, but of a different formation are, when introduced into the body, altered by various processes until their composition corresponds to that required by or acceptable to the body. The digestive process itself by which food is converted into body tissues represents perhaps the most commonly considered type of this procedure. Further, if these foreign substances are introduced directly into the blood there is created in the blood an agent described as a protective ferment, which attacks the foreign substance, reducing or changing it to substances tolerated or acceptable to the organism. Again, and of even greater interest and importance, each specific substance which may be introduced causes the formation of a specific protective ferment which attacks that substance, but no other. It is along these lines that Abderhalden has been working, and some of his experiments are extremely interesting.

If the serum of a dog is placed in a polariscope together with cane sugar no rotation occurs, indicating that there is no cleavage between the two, but if the dog's blood has first received an injection of cane sugar, that serum placed in a polariscope with the sugar exhibits rotation or cleavage, indicating that there was developed in the dog's blood as the result of the presence of the foreign matter, sugar, a substance which has the property of attacking sugar, changing its structure to one acceptable to the organism.

Abderhalden has further shown that substances natural to the body are foreign to the blood when introduced directly into it, causing the appearance therein of specific protective ferments. For instance, kidney tissue, or cells introduced into blood cause the appearance of ferments which are specific for such tissue, and further that such ferments are specific for the kidney tissue from other dogs as well. Another fact on which this procedure was based was the demonstration by Schmorl, Veit and Weichardt, that shortly after pregnancy begins and continuing for some days after its termination, chorionic epithelial tissue or cells from time to time enter the maternal circulation. Abderhalden was able to demonstrate that these chorionic cells

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in the blood stream gave rise to the formation of a specific protective ferment which attacks these cells, causing them to lose their individuality, becoming thereby acceptable to the blood, and Abderhalden's serodiagnosis of pregnancy consists in the demonstration of these protective ferments in the blood of a pregnant woman. The demonstration itself consists in showing that the serum of a pregnant woman will react on placental tissue, *i.e.* chorionic cells, outside of the body, owing to the presence in the serum of these ferments with a predilection or specificity for chorionic tissue, these ferments being developed in the blood of the pregnant woman to combat the invasion of its stream by chorionic cells, an occurrence continually happening, as shown by the work already mentioned, and corroborated by the investigations of Peters, Strahl, Beneche, Brice, and Teacher, who further showed that these cells are present in the blood stream as early as the first month of pregnancy. With these chorionic cells in the maternal blood, protective proteolytic ferments are mobilized which will cause cleavage of human placental albumen and its reduction into peptones and amino acids. Abderhalden states that there is in all probability a much greater exchange of substances between the placenta and the maternal blood during pregnancy than simple chorionic cells, which opens up a field of vast possibilities in the investigations of the various phenomena of pregnancy, particularly with reference to the so-called toxemias which may represent some disturbed balance between the entrance of various substances foreign to the blood and the production of the protective ferments to combat such an invasion. The study of the protective ferments offers an alluring prospect in other subjects than obstetrics, the work of Fuchs being especially interesting. He reports experiments which confirmed the absolutely specific nature for the organ involved of the ferments demonstrated by the Abderhalden technic. The serum of rabbits treated with human kidney tissue was able to digest kidney tissue in eighty-eight hours, while it did not digest liver tissue, and vice versa. He has also confirmed in further research the findings of others in regard to the specific digestion of testicle tissue by the serum of men with dementia precox and of ovary tissue by women under similar circumstances, but never the reverse. Also the total absence of any digesting property for the ovaries or testicles in the serum of patients with depressive mania, and further, the positive reaction in cancer cases. The reaction proved specific for the organ whether derived from human beings, calves or laboratory animals, and it was equally pronounced irrespective of the species.

The diagnosis of pregnancy by demonstrating the presence in the blood of a proteolytic ferment specific for placental albumen, as can be imagined, is a complicated procedure necessitating laboratory technic of a high grade. Abderhalden has from time to time changed, improved, and simplified his technic, all the while insisting upon the necessity of an absolute regard for the most minute details of the work. That other investigators were, especially in the beginning, unable to secure the same results as he himself did he attributes to errors in technic, and that most investigators appreciated this fact is witnessed by the character of their work, which improved as they eliminated the various sources of error. To illustrate the ease with which the results may be negated, one instance might be cited. Two investigators, Schimpert and Hendrey, working in Freiberg, were unable to substantiate Abderhalden's results. They went to Halle and worked in his laboratory perfecting their technic, but on returning to Freiberg again failed with their tests, when investigation soon disclosed the fact that the water of Freiberg, which was used to wash the placental tissue, was so soft as to cause a hemolysis of the blood in the placenta, resulting in a contamination of their material, and so a distortion of their results. Correcting this difficulty by the addition of salt to the wash water, they were then able to duplicate Abderhalden's work. Without reviewing the earlier technic of Abderhalden, in which a special polariscope was used to demonstrate cleavage between placental tissue and serum containing the specific proteolytic ferment, a brief description of the technic as employed at the present time may be given,—the so-called dialysation method. The theory and procedure by which the serodiagnosis of pregnancy is made may be first very briefly stated. The serum of a pregnant woman contains a specific proteolytic ferment, which has the power to digest placental albumen. Pregnancy can be diagnosed by demonstrating the presence of this ferment in the blood serum. Its presence in the serum can be shown by the addition of such a serum to placental albumen, resulting in a digestion of the albumen.

The serum is removed from a few c.c. of blood taken from a supposedly pregnant woman; this added to a small amount of thoroughly washed human placental tissue, is placed in a parchment bag (called a dialyser); the bag is then immersed in distilled water contained in a glass dish, the whole being incubated for a proper period. At the end of this period if the serum contains the proteolytic ferment present in the blood of a pregnant woman a more or less complete digestion of the placental albumen will have occurred. The parchment bag has the peculiar property of retaining albumen, but of allowing the products of albumen digestion to escape, that is, its walls are impervious to colloid substances, as albumen, or serum, but are pervious to crystalloid substances, as peptones, amino acids, etc, *i.e.* the end products of albumen digestion. So if any digestion of the placental albumen in the bag occurs as the result of the presence of a specific proteolytic ferment in the serum which was added to it, some of the products of its digestion

will escape from the bag into the surrounding sterile water, where their presence is determined by a delicate reaction in which a substance ninhydrin is used. This latter is a salt, which added to a solution containing peptones, polypeptids or amino acids gives a violet color on boiling, even though the amount of these end products of albumen digestion be exceedingly small.

While the theory of the procedure is comparatively simple, the actual practise of the test demands a high grade of laboratory skill and a most painstaking regard for the minutest detail. The following description of the test is as brief as is compatible with accuracy.

1. *Serum.* Thirty c.c. of the patient's blood are withdrawn from one of the superficial veins at the elbow, using a glass syringe of the type employed for antitoxin or serum administration. Needless to say, strictest aseptic technic is required. The serum from this blood should be used the same day, and it is important that it be free from corpuscular elements, bacterial contamination, and that no hemolysis has occurred.

2. *Placental Albumen.* This is obtained from fresh normal placentas, from which the membranes and fetal surfaces are removed. The placenta is cut in portions the size of a twenty-five cent piece and washed in running water to remove blood. It is then boiled in water containing two drops of glacial acetic acid to each two litres for five minutes in a porcelain dish; it is then boiled in a fresh water for another five minutes, when the water is tested after filtering for albumen, using the ninhydrin test. If the test is positive the placental tissue is boiled again and repeated until the filtered water is negative for albumen. The coagulated albumen, together with the last water, is placed in a glass jar and covered with a layer of toluol, the latter a balsam preparation which acts as a cover to prevent contamination of the contents of the jar. It is now ready for use, but should be tested on each occasion it is used, if more than one day elapses between tests. The important thing is to be sure that it is free from all dialysable substances, as peptones, alpha amino acids, etc.

3. *Dialysers.* The dialysers are porous parchment bags, those made by Shleicher and Schnell, No. 579A, being the most satisfactory. Each bag must be tested for the permeability of peptones and the non-permeability of albumens.

To test for permeability of peptones, 5 c.c. of a 1% solution a "Seiden" peptone with 20 c.c. of sterile water are placed in the bag and incubated for 16 hours at 29°C. The dialysate is then tested for peptone with ninhydrin; a moderate color indicates that the dialyser is suitable, a weak or strong color indicating that the dialyser should be discarded.

To test for the non-permeability of albumen, a solution of egg albumen is placed in the bag, and after incubation the dialysate is tested for albumen, a negative result indicating that the bag is a suitable one. After these tests the dialysers are washed and boiled, and then kept in chloroform water covered with toluol. They are washed and boiled after each test, and should be from time to time retested for permeability as indicated above.

4. *Ninhydrin* is the trade name of Triketohydrindenhydrate, a salt discovered by Ruheman, which when added to a solution containing albumen, peptones, polypeptids, or the amino groups in the alpha position to the carboxyl group gives a violet color on boiling. It is much more delicate and sensitive than the well known biuret reaction.

The fact that "ninhydrin" reacts with protein derivatives which no longer give the delicate biuret reaction, has made it doubly useful in following the transformations of the albuminous substances into their non-protein components. In order to ascertain to what extent abiuret compounds, which react with triketohydrindenhydrate, though they do not give the classic biuret reaction, may be distributed in the organism, Abderhalden and Schmidt have made an extensive search for such reacting substances. These were duly found existent in fresh milk, urine, saliva, blood-plasma and serum, lymph, sweat, the contents of cysts, egg, and meat, and it is necessary in the execution of tests involving the use of the reagent, to employ special precaution against contamination with skin secretion, small traces of which are sufficient to initiate a positive reaction.

As the result of applying the new ninhydrin test, Abderhalden has already found that certain biologic reactions, hitherto ascribed to the proteins, are associated with the presence of biuret contaminations which give the reaction. Thus it appears that various proteins which provoke distinct physiologic responses when introduced into the body lose this property if they are first purified by dialysis until the compounds reacting with ninhydrin completely disappear. The bearing of this on the study of anaphylaxis will at once be apparent. Abderhalden insists that all proteins employed in anaphylactic investigations must be subjected to thorough purification by dialysis before the responses which they may elicit are charged to the protein itself rather than to derived products accompanying it.

5. *Containers* should be of glass, sterilized, and should be of sufficient size so that there will be 1 c.m. between the walls of the container and the dialyser when the latter is placed in the container.

Technic of the Test. A dialyser previously tested as described is removed from the chloroform solution and washed. In it is placed one gram of the placental albumen, which is free from all dialysable substances. To this is added 1.5 c.c. of serum from the supposed pregnant case, after which the dialyser is washed in running water to remove any possible albumen contamination from its outer surface. It is then placed in the container with 20 c.c. distilled

water; the top of the water should be 25 cm. above the top of the dialyser contents and covered with a layer of toluol. The container is closed with a sterile cotton plug and placed in an incubator at 37.5° C. for 16 hours, at which time the dialysate is tested for the presence of the products of albumen digestion. Ten c.c. of it are taken free from toluol and placed in a small beaker. To it are added 2 c.c. of a 1% solution of ninhydren, after which it is boiled for one minute after the first bubbles appear. The color is read after thirty minutes.

A clear or yellow color denotes a negative result. A violet, light lavender, or bluish purple color denotes a positive result.

Controls. As with similar tests, a control test is necessary to insure the accuracy of the results. Fifteen c.c. of serum alone is placed in a separate dialyser, the dialysate being tested after incubation in the same manner, or 15 c.c. of serum may be inactivated by heating at 60° C. for ten minutes, after which it is placed in a dialyser with one gram of placental albumen, incubated and tested as before.

Jellinghaus and Losee give the following as the method of interpreting a test.

Dialysate negative with ninhydrin, controls negative, not pregnant.

Dialysate positive with ninhydrin, controls positive, not pregnant.

Dialysate positive with ninhydrin, controls negative, pregnant.

Dialysate positive with ninhydrin, controls positive, but distinctly lighter in color, pregnant.

They emphasize the need of minute attention to details and enumerate those especially needing care.

1. The placental tissue must be fresh.

2. The placental tissue must be free from blood.

3. If washed in very soft water salt should be added to avoid the possibility of hemolysis. After the blood is removed with the water containing salt, further washings are with plain water.

4. The placental tissue prepared for the tests should be tested each day before use for the presence in the water of any substances giving a positive reaction with ninhydrin; should any be present it should be reboiled as described in its original preparation.

5. The dialysers should be frequently tested with albumen and peptones for permeability.

6. The serum must not be hemolyzed and must be free from dialysable substances. It should be used from two to five hours after obtaining.

7. The contents of each vial of ninhydrin should be measured, as they do not always contain a full gram. Two c.c. of a 1% solution is used; this solution will keep seven days.

8. Emphasis is laid on the need of observing strict asepsis in handling the materials for the test and on the aseptic condition of all containers and utensils.

Coming to the practical and therefore interesting and important aspect of the test, we may first admit certain facts as sufficiently proven: first, the blood of a pregnant woman contains at least one substance peculiar to the pregnant state, *i.e.* a proteolytic ferment specific for chorionic epithelium (placental albumen), and second, that it is possible to demonstrate the presence of this substance by a bio-chemical test. The questions that immediately arise are: Is the test practical from the point of view of ordinary laboratory technic? Is it reliable? Can it be useful in the general practice of obstetrics? Or is it only of ultra scientific interest, a by-product of the research laboratory? The questions can best be answered by a generalized review of the work of the various investigators of its merits. That it has awakened much interest in the scientific world is evinced by the volume of literature on the subject published since Abderhalden's first reports in 1912. It is interesting and natural perhaps that the greater portion of articles concerning it are of German origin; next to Germany this country has been most prolific in its contributions. There have been reported in all considerably over two thousand cases in which the test has been applied. A study of these reports indicates several striking facts: first, that the reports of the early tests of the various investigators show a much higher percentage of failures than the more recent works of the same investigators and that the earlier failures were almost invariably because of faulty technic, a fact testified to by the authors themselves. Second, that the enthusiasm for the accuracy and practicability of the test increases rather than diminishes with the increasing familiarity with its details as acquired by the men engaged in the work.

It may be stated that there is almost an unanimity of opinion that the test is accurate in results and practicable in performance. Some investigators have questioned, however, the specificity of the ferment, their results seeming to show that positive reactions are possible with other conditions than pregnancy. For instance, Williams and Pearce state that it was never negative with a known case of pregnancy, but was also positive in two cases of nephritis, one of tabes, one of infectious carbuncle, and occasionally in perfect health. On the other hand, Schwarz vehemently attacks the work of Williams and Pearce, declaring their technic faulty and intimating that they don't appreciate what hemolysis means. Lindig, another who said the reaction was positive in other conditions than pregnancy, especially cancer, is taken to task by Abderhalden who says Lindig's errors are to be found in the use of a powdered placental preparation, the latter almost invariably giving a positive reaction, especially if kept for any time, the result apparently of some decomposition process which forms dialysable substances. Veit says

the test is a valuable one and brings up the point that the ectopic pregnancies do not react positively, probably because the chorionic cells are thrown off with the tubal abortion. Henkel, Sutman and McCord commended the test, McCord wth 240 cases and practically no failures. Abderhalden reports 200 cases with one failure. Jellinghaus and Losee report 563 cases, grouped according to the various stages of their technic, concluding that it is an accurate test for the presence or absence of chorionic cells still capable of being washed into the maternal circulation. Petri says it is amazingly accurate. Wolff describes his experiments, resulting in failure until he learned from Abderhalden himself the exact technic for preparing the placenta. He concludes that the method shows pregnancy in its very beginning and that the reaction is of special value for differential diagnosis between pregnancy and tumors. He says the test is not suited for general practice, but has great value in hospitals, where it can be performed often enough to ensure exact technic. Gambaroff reports from Moscow forty-eight cases of cancer and thirty-seven other cases in which the Abderhalden technic was applied, including twenty-two pregnant women and ten normal persons, the tabulated details showing remarkable concordance, constantly negative responses in the normal serum and constantly positive in all the others, with the single exception of a syphilitic who gave a positive cancer reaction. Judd says: "Some thirty or more of my own cases tested by this method have been quite in accord with the strict specificity of this test when putrefactive changes, fresh serum, and the proper selection of dialyzers have been carefully controlled." On the other hand, Heaney and Davis say a review of the literature and an experience with the test, together with the use of other means of testing the digestive activity of the blood, leads the authors to question the specificity of the test of Abderhalden; though since the need of such a reaction is great they urge that the test should be further tried and its results reported accurately. Schwarz suggests an error in technic to explain the failures. Echols says: "Fifty-seven tests were made according to Abderhalden's method; though the test will probably never be simple enough for the general practitioner to carry out, there is reason to believe that when done in properly equipped laboratories, Abderhalden's method will in the course of a year or so take its place with the Wassermann and Widal reactions in point of reliability." Ruhsamen reports ideal results in one hundred cases. Liehenstein, forty positive results in forty pregnancies, one positive result in thirty-four non-pregnant cases. Zoeppritz describes early failures, but with a mastery of technic perfect results in fifty cases. Engelhorn does not consider Abderhalden's dialysis method a specific reaction as a diagnosis cannot be reached by it, but there is some question of the accuracy of his technic. Mayer considers Abderhalden's pregnancy reaction a valuable aid to diagnosis. Schufer had two incorrect results in one hundred and twenty-three tests. Strange states that positive findings were obtained in 100% of the seventy-three women tested with Abderhalden's technic.

I am fortunate in being able to describe some results obtained here in Boston. These are from a series being prepared for a future report by Dr. W. H. Grant, the laboratory work being done by Dr. McCarthy of the pathological department of Tufts.

In twenty cases known pregnant, the first seventeen were positive by the Abderhalden technic, the last three negative, these accompanying difficulty with the dialysers. Eighteen cases clinically pregnant gave positive results in each case, four cases not pregnant gave four negative results. Besides these were twenty-eight tests in doubtful cases giving varying results, but which until sufficient time has elapsed to demonstrate the presence or absence of pregnancy, have no significance. The report of the completed series will be awaited with interest; in the meantime one is impressed by the concordance of the clinical and laboratory findings.

From a review of the literature one may draw several conclusions:

1. That the study of the bio-chemistry of the protective ferments is one destined to be of great importance in solving many of the hithertofore unexplained phenomena of health and disease.

2. That pregnancy aside from its local manifestations, evinces at least one general effort on the maternal organism similar to that evinced by pathological conditions, *i.e.* causing an invasion of the blood by elements foreign to it, and that there are developed in the blood substances to combat this invasion much in the same manner as the invasion of disease is combated, bearing out the tendency in evidence of late, to regard pregnancy as a pathological condition.

3. That although the Abderhalden test for the presence of the specific proteolytic ferment present in the blood of pregnant women is a difficult and extremely delicate one, a really surprising number of accurate results have been reported, especially surprising when considering that these reports are from a great number of widely separated and independent investigators, each of whom had to perfect his individual technic to a certain extent before it could be said that the theory and not his skill was being tested.

From which may be made the following deductions:

1. That the test is available where the services of a competent laboratory can be had.

2. That it is by far the most accurate method at our disposal for the diagnosis of pregnancy, comparing favorably as a test with the Widal and Wassermann reactions, in their respective fields.

3. That until some method is devised whereby the materials used, especially the prepared placental albumen, may be kept for some time

and in a more convenient form, and dependable dialysers more easily procurable, the test will not be generally available.

In this connection it may be mentioned that attempts are being made to simplify the technic so as to make it more generally available. Gutman, in a personal communication, expresses confidence that such a simplification can be accomplished, difficulty in procuring a special dialyser being the particular obstacle with which he is contending.

4. That it places in our hands a possible means whereby we may make a remarkably accurate diagnosis of the existence or non-existence of pregnancy, should the exigencies of any case demand a prompt determination of the fact.

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THE EFFECT OF "606" ON THE EYE, WITH THE REPORT OF SEVEN CASES OF SERIOUS EYE COMPLICATIONS FOLLOWING ITS USE.*

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WHEN Ehrlich first introduced his 606 there was a great fear in the minds of the ophthalmologists that the effects of the new preparation on the eye would be similar to that produced by other arsenical compounds such as atoxyl, arsacetin, and soamin, which had preceded it. All of these arsenic compounds had been claimed by their introducers to be harmless to the eye, but further experience proved this not to be the case. Quite a large number of cases of blindness were reported to have followed their use. Of these preparations, the one most largely used was atoxyl, an empirical, synthetical arsenic compound, which came into use in the treatment of sleeping sickness and was used to a considerable extent in the treatment of syphilis. Although, claimed at first to be innocuous to the eye, from a study of the literature for 1908, 1909, and 1910,—the years during which it was chiefly used,—I have been able to find over 100 cases of complete blindness and a large number of cases of partial blindness resulting from its administration. The ocular manifestations following its use always assumed the character of a primary optic atrophy. It was essentially a degenerative process affecting either the ganglion cells of the retina or the fibres of the optic nerve, somewhat similar to the condition produced by other toxic substances, such as methyl alcohol, quinine, and other toxic substances. Both eyes are invariably affected. The blindness may come on suddenly or gradually, but once the lesion is produced, it remains stationary or slowly progresses until more or less complete blindness results. A partial recovery occasionally occurs if the drug is withdrawn early enough. The condition is not improved by any treatment, and a second injection of atoxyl never improves vision, but causes a more profoundly injurious effect. With the ophthalmoscope the picture is seen to be one of simple optic atrophy.

The attitude of the ophthalmologists towards 606 was well expressed by Henderson, of St.

* Read at the October, 1913, Clinical meeting of the Staff of the Boston Dispensary.

Louis, who, in an article on the effects of atoxyl, in the *American Journal of Ophthalmology*, for November, 1910, says in his concluding paragraph: "The subject is worthy of careful ensideration in view of the approaching distribution of 606. If I am correctly informed, this, too, is a synthetic preparation of arsenic. The world-wide publicity already given to the achievements of this remedy will result in its more or less indiscriminate use by every physician who can get it. In accepting and using this potent remedy we must not forget that all of its predecessors were for a time considered harmless in their action upon the visual apparatus by authorities in whom we had every right to repose the greatest confidence."

The important questions which the ophthalmologist wished to have answered were: (1) Is arsenobenzol innocuous to the healthy eye, especially the healthy optic nerve? (2) Can it be used when the nerve is inflamed? (3) Is it a safe and efficient remedy in the treatment of syphilitic disease of the eye itself?

Serious disturbances of the visual apparatus certainly do follow the administration of arsenobenzol in a certain number of cases, but when one considers the tremendous number of patients that have received it, the number of ocular disturbances following its use are small as compared with atoxyl and its allied drugs. An examination of the literature during the past three years shows that most authorities believe that the eye lesions following 606 are to be considered as relapses of syphilitic disease, and not a consequence of the arsenobenzol. There are still a few, however, who maintain that it is a menace to the eye and should be used only in special conditions. Ehrlich himself, in view of the bad results to the eye following atoxyl, advised caution in the use of his preparation and advised a careful examination of the eye before injection. Later, however, when he had received reports of a large number of cases without untoward effect upon the nerve, except in one case, he claimed that 606 was without detrimental effect upon the eye. He also deplored the fact that ophthalmologists were not making sufficient use of his preparation in syphilitic diseases of the eye. In defending the use of 606 against the charge that it was not without danger to the eye, in the *Wien. Klin. Rundschau* of Jan. 29, 1911, he states that disturbances of the optic nerve in recent cases of syphilis are found, not only after the use of salvarsan, but also after the use of Hg. On the other hand, when sufficiently large doses of salvarsan were used, such affections were never seen. The use of atoxyl and arsacetin show that the toxic symptoms increase with the amount of the dose injected. The optic nerve affected after salvarsan improves under antisyphilitic treatment, and sometimes it is cured by another injection of salvarsan. An affection of the nerve caused by atoxyl could never be cured by an additional injection with an arsenical preparation. Numerous other authors support the contention of Ehrlich that arsenobenzol is innocuous to the healthy eye, and the ocular lesions following its administration should be considered as manifestations of syphilis. Wechselmann and Selligshon of Berlin gave the injections in 1400 cases of their own, and collected reports from approximately 20,000. Of these cases, none showed any harmful effect upon the optic nerve. At first they excluded from the treatment any cases showing inflammation of the nerve, but later, after they had given the injection to several doubtful cases, that is, cases where it was impossible to say whether the nerve was inflamed, or not, without deleterious effect, they used it in several cases of outspoken optic nerve affection, with the result that the condition of the inflamed nerve was considerably improved, and in some cases cured. From this they conclude that 606 may be given with favorable results, even when optic neuritis exists. This opinion is confirmed by the experience of most writers. They also gave the remedy in a number of cases of primary optic atrophy, on which it had no apparent effect, either beneficial or otherwise. This, however, is quite contrary to the experience of others. Most authors agree that the effect of the 606 on the atrophic nerve is detrimental, that it causes a more rapid degeneration of the nerve, and that atrophy of the nerve should be considered a contra-indication for the administration of the drug.

A comparison of the lesion resulting after atoxyl with that following 606 will aid, I think, in determining whether the ocular lesions after 606 are due to the arsenobenzol or not. In atoxyl poisoning the lesion is essentially a degenerative one, resulting in an optic atrophy very similar to the condition produced by other toxic substances, whereas the lesion following 606 is an acute inflammatory one. Usually four to eight weeks, or even longer, after an injection of 606 the patient notices a sudden dimness of vision, which becomes rapidly worse. With the ophthalmoscope the vitreous will be found to contain a greater or less number of opacities which at times are so profuse as to prevent a clear view of the fundus. The disk, if it can be seen, is red and veiled, may be swollen, and the blood vessels, especially the veins, dilated and tortuous; scattered through the fundus will be found inflammatory exudates in the retina and choroid, often accompanied by hemorrhages. These are precisely the sort of lesions which appear in syphilitic disease of these structures and form a picture diametrically opposite to that found in atoxyl and allied poisoning. But one eye usually is affected,—although both may be. In atoxyl poisoning both eyes are invariably affected. Antisyphilitic treatment, or another injection of the 606, will usually improve and sometimes clear up the condition. After atoxyl no treatment benefits, and a further injection of atoxyl causes a

more profoundly injurious effect. Moreover, the late appearance of the lesion after the injection of the 606 seems to me to have a bearing upon the question of its causation. Usually it is a matter of weeks, or even months, after the injection before the ocular symptoms appear. As we know, the arsenic is rapidly excreted from the system,—usually after three to four days but few traces can be found,—and it seems to me that if toxic symptoms were to be produced they would be found shortly after the injection, while the organism was still under the influence of the arsenic.

Iritis, retino-chorioditis, optic neuritis, and ocular palsies from affection of the third, fourth and sixth nerves, as well as affection of the fifth nerve, have followed the use of salvarsan in a certain number of cases. Davids reports a case which had bilateral iritis following an intramuscular injection. Two weeks later a relapse occurred in one eye, which rapidly subsided after an intravenous injection. Van Lint reports two cases of iritis treated with salvarsan. Iritis was reproduced in the same eye after the injection. DuJardin and DeNeux have observed in two cases of secondary syphilis recently injected commencing optic neuritis, paresis of the superior oblique muscle and paralysis of the oculomotor, with beginning papillitis. They think that these conditions have a bearing on the administration of 606, but do not think it is a purely toxic action. They believe there exists a relationship between the modified syphilis and the action of arsenobenzol, causing a disturbance in the evolution of the disease. Shanz reports two cases of optic neuritis following the injection of salvarsan, which were cured by a repetition of the injection. We have had one case of affection of the fifth nerve following 606 at the Dispensary. There was anesthesia of the cornea and the right side of the forehead and the face. The lesions in the eye itself may be considered as syphiliomata produced by the immigration of the spirochetes which have been freed by the softening of foci by the injections. They are analogous to the tubercular metastases observed after the injection of tuberculin. It must be remembered that the nerves pass through narrow channels of bone lined with a tough connective tissue, which, as places of predilection for nests of spirochaetes, escape the therapeutic action of the 606. Some explain these apparent relapses as an endotoxin action, the endotoxins having been set free from the dead spirochaetes.

The relapses following 606 were much more frequent in the early days of its use, when there was more or less uncertainty in regard to the size of the dose, and the hope was entertained that it was the *therapia sterilans magna*, which would cure by a single injection. As a result, the amount given was too small to kill all of the spirochaetes, and those not destroyed were later able to cause relapses of the disease in various tissues. Moreover, it is held by some authorities that small doses have a provocative or irritative effect. According to Ehrlich, in such cases the parasites are not killed, the dose being too small, but irritated and in this condition produce greater quantities of toxins. At any rate, during the past year, during which the drug has been administered much more energetically, relapses in the eye have not been so frequent.

It has been the custom at the Dispensary to refer those cases which were to receive 606 to the eye room for examination, especially with reference to the condition of the optic nerve and the fundus. A report is returned, giving the vision of each eye and the condition of the fundus and optic disk. If the vision of either eye is below normal, the reason for the same, refractive error or otherwise, is stated. A record of the same is kept both in the skin room and in the eye room. We thus have an exact knowledge of the condition of the eye before the injection of salvarsan, and if a deterioration of vision should occur subsequently the case is referred again to the eye room for examination as to its cause.

During the past year, from July 1, 1912, to July 1, 1913, arsenobenzol has been administered, by a coincidence, 606 times. We have the records of four cases in which disturbances of vision followed the injection during this period. In addition to these four there were three other cases which received the injection just previous to July 1, 1912, but whose eye symptoms appeared or were treated after July 1, and these we have included in this group. It will thus be seen that but two-thirds of one per cent. of the cases receiving the injection show disturbances of the eye afterwards.

Of these seven cases, six showed serious lesions of the deeper structures of the eye, and in four of these practical blindness has resulted. In one case the relapse showed itself as an iritis, which readily improved after a second injection of arsenobenzol. In analyzing these cases, the important data are:—

1. The date of the injection.
2. The date of the onset of symptoms.
3. The character of the lesions in the eye; and
4. The result of treatment and prognosis;

and it is with a view to these headings that I wish briefly to describe these cases:

CASE 1. Man, 41 years of age.

(1) *Date of Injection of* 606. First injection Sept. 7, 1811. Second injection, February 20, 1912. Both eyes normal.

(2) *Date of Onset of Symptoms.* April 16, 1912, over six weeks after injection. Vision of right eye = 10/200.

(3) *Character of Lesion.* Numerous opacities of vitreous, disk blurred and veiled, several hemorrhages and exudates in chorioid and retina.

(4) *Treatment and Result.* In spite of energetic antisyphilitic treatment vision rapidly failed. At last examination, Sept. 26, 1913, vision = could

count fingers in temporal field. With the ophthalmoscope, vitreous opacities still present but not nearly so numerous, hemorrhage on disk—atrophic patches through fundus.

Case 2. Man, 27 years of age.
(1) *Date of Injection.* June 5, 1912. Eye normal.
(2) *Date of Onset of Symptoms.* Six weeks later noticed blurring of vision of left eye—vision = 20/80.
(3) *Character of Lesion.* Dust-like opacities of vitreous, disk swollen and red, veins engorged and tortuous—exudate in chorioid and retina.
(4) *Treatment and Result.* Intramuscular injections of mercury. Vision failed rapidly for a month at which time V = 4/200. Went to New York, treated there by a physician with pills and drops. Vision improved somewhat until last March when there was sudden loss of vision—no treatment since. Seen Sept. 16, 1913, when V = light perception. Received 606 again September 19,—two days later some improvement. Last seen September 30, V = hand movements at 2 m. Examination with ophthalmoscope shows massive exudates in vitreous obscuring all details of fundus.

Case 3. Young woman. Grace G. 22 years. Referred to eye room for specific iritis of right eye on June 20, 1912.
(1) *Date of Injection.* June 26, 1912. Vision of OD = 20/40. Vision of OS = 20/20. Fundus O.K. Iritis rapidly improved.
(2) *Date of Onset of Symptoms.* Six weeks later right eye became affected. Seven weeks later left eye became affected.
(3) *Character of Lesion.* Opacities of vitreous in both eyes—disks red and blurred.
(4) *Treatment and Result.* In spite of most vigorous antisyphilitic treatment together with pilocarpine sweats and subconj. injection of Dionin 10%, her vision rapidly grew worse and at the end of four months she had to be led to the dispensary for treatment. On Jan. 13, 1913, about five months after onset of symptoms, her lids became enormously swollen, red, tender and indurated so that she was unable to open them. A tense, tender swelling could be felt along the upper edge of orbit on both sides = orbital periostitis. Vision = hand movement. Later showed syphilitic nodule on sclera. Under vigorous specific treatment with pilocarpine sweats gradually improved in course of next few months. Vou = 20/40, July 12, 1913. Last seen September 23, 1913. Vitreous quite clear; few atrophic spots in fundus. On posterior surface of cornea deposits of inflammatory exudate. V OD = 20/100, V OS = 20/70.

Case 4. Man, 23 years of age.
(1) *Date of Injection.* July 24, 1912. Eyes normal.
(2) *Date of Symptoms.* Two weeks later pain and redness of left eye.
(3) *Character of Lesion.* Iritis with posterior synechia.
(4) *Treatment and Result.* Received a second injection of 606 on August 28. Rapid improvement.

Case 5. Man, 42 years of age.
(1) *Date of Injection.* August 20, 1912. Eyes normal.
(2) *Date of Symptoms.* Seven weeks later vision of left eye failing. Vision = light perception only.
(3) *Character of Lesion.* Vitreous so smoky that details of fundus could not be made out. Three weeks later developed an iritis.
(4) *Treatment and Result.* Iritis improved rapidly under local treatment—atropine. Condition of vitreous remained practically the same in spite of antisyphilitic treatment. Saw him last on January 10, 1913. Vision very slightly improved. Could count fingers with OS. With opthalmoscope condition of vitreous practically the same.

Case 6. Man, age 27 years.
(1) *Date of Injection.* Oct. 9, 1912. Vision and fundus normal.
(2) *Date of Symptoms.* March 26, 1913, five months later, V OD = 20/50. Could not state just when symptoms began but quite recently.
(3) *Character of Lesion.* Large vitreous opacities—disk red and veiled. Fundus indistinct.
(4) *Treatment and Result.* Received injection of 606 without any apparent improvement. Specific treatment. Last examined May 31, 1913. V OD = 20/70. Fundus indistinct—numerous floating opacities of vitreous.

Case 7. Woman, Sarah B. Age 29.
(1) *Date of Injection.* February 12, 1913. Eyes normal.
(2) *Date of Symptoms.* Six weeks later, on March 26, 1913, returned saying vision of left eye had become dim several days before. V OS = 20/120.
(3) *Character of Lesion.* Some haziness of vitreous. Disk red and blurred—retino-choriodities in macula.
(4) *Treatment and Result.* Three days later showed beginning iritis. Specific treatment. Condition grew worse. April 2 received second injection 606, no improvement. April 17 vision = 7/200. Improvement from this time on. July 8 vision = 20/50. Last seen September 30, 1913. Vitreous clear. Few glistening spots in macula and other parts of fundus. Disk O.K. Vision = 20/30.

In analyzing these cases, the first point that strikes one is the length of time that elapsed between the time of the injection and the onset of the eye symptoms. In every one of the cases involving the deeper structures of the eye a period of at least five to six weeks elapsed before the onset of the symptoms. Surely all the arsenic had been eliminated from the system by this time. The second most striking feature is the severity of the eye lesions. In four out of six of the cases in which the deeper structures of the eye were involved practically complete blindness resulted. None responded to the ordinary anti-specific treatment. This is not in accordance with the views expressed by others who say that lesions following 606 are usually improved by specific treatment. In both of the other cases the vision was impaired, in one quite severely, a vision of 20-70 resulting. While I believe that in all of these cases the effects were due to the disease and not to the drug, it tends to prove that the character of the disease is changed, that its virulence is increased. This would support the contention of those who believe that insufficient doses have a provocative

or irritating effect. A third point is that these relapses are not occurring as frequently now as formerly. Since the first of the present year we have had but one case, that of Sarah B., who received her injection Feb. 12, and developed her neuro-retinitis March 26. Moreover, this is the only one in which the symptoms were less severe and the only one whose vision was restored to practically normal. May this not be the result of more energetic treatment with salvarsan?

While of course the number of cases that we have had in the Dispensary is too small to permit us to make any too broad or too positive statements in regard to the effects of arsenobenzol, yet I feel this way about it. If, as most authorities claim, these ocular lesions following 606 are simply the manifestations of syphilis, and if, as it is declared, arsenobenzol has such a remarkable beneficial effect in clearing up the symptoms of syphilis, then I believe that in all of these cases of ocular relapses the injection should be repeated, and that as soon as the symptoms appear. There is no organ in which irreparable damage to the delicate tissues can result more quickly from an inflammatory process than in the eye. Treatment after the damage has been done will not restore the destroyed nerve or other tissue. If the relapsing lesion affected the mucous membrane of the throat or the skin, one would not hesitate to give 606 any number of times it was deemed necessary to eradicate the disease. Then why not if the symptoms happen to affect the eye?

As regards the therapeutic effect of 606 in syphilitic disease of the eye, there is no unanimity of opinion as to the curative effect of the new product in ocular disease. In interstitial keratitis of inherited syphilis, for which mercury is well nigh useless, salvarsan has, on the whole, given no better results. A few men have reported good results, but the majority think the malady little influenced by it. The relief of the photophobia is generally attributed to it. This has been our experience at the Dispensary. In two of the cases, both boys, aged twelve and thirteen, respectively, one of whom received two injections at intervals of two months, the other four injections at intervals of two weeks, I think the course of the disease was shortened somewhat. In both the corneae were quite clear and glancing after three months' treatment. Usually it requires anywhere from four or six months' to one or two years' treatment. Most of the men who have reported favorable results have given the injection several times.

Iritis and iridocyclitis of secondary syphilis, usually respond well to the drug and much more quickly than to mercury. Improvement can frequently be found on the day after the injection. In four cases treated at the Dispensary, improvement was rapid, with apparent cure in about ten days, whereas under ordinary circumstances it requires three to six weeks for complete cure. The eye showed improvement within a few days after the injection. Such rapid improvement is to be expected in such a vascular tissue where the drug can come quickly into contact with the causative factor.

As far as the optic nerve is concerned when optic neuritis exists as a result of syphilitic inflammation, most authors maintain that the injection of 606 has a most rapid and beneficial effect. Shanz, Wechselman and Selligsohn have reported cases of optic neuritis in which arsenobenzol was used with most favorable results. In three cases of papillitis reported by Shanz, improvement was noticed on the same day as the injection. In two cases of optic neuritis treated by injection at the Dispensary the improvement was marked inside of a week. When simple primary atrophy of the nerve exists the consensus of opinion is that no benefit can result from 606. In fact, the atrophic process seems to be unfavorably influenced by the drug. This seems to be the sole contra-indication for 606 in specific diseases of the eye. Some writers also maintain that no benefit results from the use of 606 in ocular paralysis. This has not been our experience in one case seen at the Dispensary. The patient, a woman 49 years of age, with specific history of twenty years' duration, was referred to the eye room on June 20, 1913, with a ptosis of the right lid, which had started one week previous. Examination showed complete ptosis of right eye, paralysis of internal, superior and inferior recti muscles. She received 606 on July 16; six days later all paralyses were very much improved. Ptosis had entirely disappeared and movements of the eye were almost normal.

Summing up the effects of 606 on the eye, I should say that no case of injury to the healthy eye has been proven. The consensus of opinion is that it is innocuous to the healthy eye. A favorable result from the application of this drug is to be expected in syphilitic disease of the iris, the chorioid and retina, and the optic nerve, in paralysis of the ocular muscles, due to syphilis, and sometimes in interstitial keratitis. As far as we can judge in the short time salvarsan has been in use, it must be welcomed as an effective specific remedy in syphilis of the eye, which seems especially indicated in cases in which speedy aid is urgent. It is not a panacea for ocular syphilis which can entirely replace our usual specific preparations. It is especially indicated when a speedy action is desired, as in primary ocular affections, or in secondary or tertiary symptoms, if a rapid impairment of function is dreaded.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.—The twenty-fourth annual meeting of the Association of American Medical Colleges was held in Chicago on Feb. 25. Five topics of medical education were discussed at the morning session; and in the afternoon there was a symposium on clinical teaching, and an address by the president, Dr. E. P. Lyon, of Minnesota, on "The Principles of Curriculum Making."

THE EARLY DIAGNOSIS AND TREATMENT OF DEMENTIA PRECOX.

By Edward Mellus, M.D., West Newton, Mass.

Our insane hospitals are full to overflowing, and notwithstanding the fact that we are adding each year to their capacity, the yearly increase in the numbers requiring care is so great that the problem of housing our growing population of insane is a tremendous one.

There are many reasons for this great increase in numbers. One of the most important is that the general public has come to feel, in spite of frequently recurring sensational charges of brutality, that the hospitals for the insane can and do care for their inmates humanely. This has resulted in the commitment in recent years of very large numbers of cases of senile dementia, filling the infirmary wards with feeble bed patients who require a great deal of nursing, and severely taxing the capacity of the hospitals.

But these senile cases, many of whom are only technically insane, showing only the expected breakdown of advancing years, have a fairly short expectation of life, and are continually making room for other patients. There is another class of patients, however, who come under the care of our institutions at an early age, and as their form of mental disease tends toward becoming chronic, without any necessary impairment of their physical health, their accumulation fills our wards with hopeless mental wrecks. I refer to cases of dementia precox. It is a fact, which need not be discussed, that the earlier a disease is diagnosed, and given proper treatment, the better is the prognosis. In the case of mental diseases, this holds true, as well as in other abnormal conditions. Yet, as a rule, patients who are suffering from a mental breakdown are not seen by physicians who have had experience in that line of work, until the disease is so far advanced that treatment in a hospital for the insane is sought as a last resort. Men who make a specialty of mental diseases do not often see their patients until the mental symptoms are quite pronounced, and it thus becomes necessary that the general practitioner should recognize the incipient stages of insanity, if we wish to make a great advance in its treatment.

I have already referred to two forms of mental disease commonly seen in the insane hospitals. If to the cases of senile dementia and dementia precox, we add those of manic-depressive insanity and general paralysis of the insane, or dementia paralytica, we will find that we have given the diagnosis of a very large percentage of our insane patients.

In manic-depressive insanity the prognosis is good, almost without regard to treatment. Although the disease is essentially a recurrent one, the patient will generally recover from the present attack, and it is a question how much that attack can be shortened by treatment.

General paralysis is a mental and physical disease, the mental symptoms usually being marked delusions of grandeur, followed by extreme dementia and death. This disease is so generally preceded by syphilis that by many of the most noted psychiatrists it is claimed that syphilis is always present in the etiology. The prognosis is invariably bad, and so far as the patient and his family are concerned, the fact that the average duration before death is only about two years, is a consoling feature.

Senile dementia is too common an ending for those unfortunate enough to outlive their usefulness, to need description.

I have dismissed these three large groups of cases thus summarily for two reasons. They are well known, and are not apt to go long undiscovered. Then, too, early treatment makes very little difference in the result; they get well or they die. On the other hand, I feel that an early diagnosis of dementia precox is much more essential in the light of the ultimate prognosis as influenced by early treatment. The prognosis in this disease is usually considered poor. I remember, not long since, when one of our state hospitals was severely criticised for including in its statistics a recovery in a patient diagnosed as dementia precox. This is no longer the case, though there are still some who insist that if there is a recovery, the diagnosis of dementia precox must have been an error.

In many physical diseases, we are familiar with certain well known prodromal symptoms, whose appearance causes us to take immediate steps for the safety of the patient or those about him. In dementia precox we often learn, when it is too late, that the patient has, for a long time, shown symptoms that should have been interpreted as danger signals. Unfortunately these signs are not heeded, for they are displayed only before parents and relatives, who are too blind to see them.

There is probably no form of mental disease where heredity plays such a tremendous part in the etiology as in dementia precox. I do not mean that you should expect always to find a history of insanity in the parents, but rarely will a case be found without some mental or neurotic taint in the family. The parents are very often eccentric, to say the least, and it is not to be wondered at that their prejudiced eyes should see nothing abnormal in their children, until it is apparent to everyone else. If, then, the parents cannot be expected to discover the early signs of an oncoming dementia precox, it is very necessary that the only ones left who have a close intimate relationship to the child, the family physician and the teacher, should be thoroughly familiar with the symptoms.

Kraepelin states that at least 70% of dementia precox cases show hereditary factors in the etiology, but that only 17 or 18% is found in

direct ancestry. A careful analysis of histories, however, would lead us to place this latter estimate much higher. We often find in the history of the parents that the home surroundings were not comfortable, that one or both parents were unable to adapt themselves to commonsense relations, or that the father, for example, had not made a success of life. Many of these cases of marital incompatibility, and of the unambitious, unsuccessful drones, were very probably mild cases of dementia precox themselves, or the results of the same disease, with partial recovery.

When we consider that heredity is so important in the etiology (in fact Clouston insists that heredity is always present), we should be prepared to find that there is a distinct type of personality that seems predisposed to this form of mental disease. This is the case, and August Hoch has given this type a name which is very apt, the "shut-in personality." Jelliffe, in an article on pre-dementia precox, describes this so well, that I will quote a passage:—

"My own observations of patients whom I have known intimately since childhood have shown that the paranoid dement in particular has been rather abnormally brilliant, but with the lights turned inward rather than outward. They were extremely unpractical in the use of their hands, or in any adaptation to material ends. They were utterly unable to observe with accuracy anything physical or material, for their minds were constantly turned in upon their own meditations. They were all unready to adapt themselves to uncongenial environment. . . They were subject to fits of abstraction, when they would not hear or see what would attract a normal youth. They were usually irritable to their families, but most desirous of being thought either amiable or brilliant by strangers. They were abnormally sensitive and suspicious, and most were prone to discuss deep, unsolvable questions."

It can scarcely be claimed that all such children as have just been described are really partially developed cases of dementia precox, but there is very little doubt that in such children we have a very fertile field for the development of the disease. If physicians would bear in mind that such children, especially where there is a known hereditary taint in the family, are in danger, and would take steps to prevent further development, a tremendous amount of good could be done.

You may easily imagine from this that dementia precox is a disease of childhood, and though that is essentially true, many cases show the first symptoms much later. The fact that in a large percentage, however, the trouble first appears at or about the age of puberty or of adolescence, and in many other instances during pregnancy or the menopause, has led many psychiatrists to contend that it is in reality a product of auto-intoxication, probably caused by some internal secretion of the testicle or ovary. Considerable investigation is being done in this line, and more light may be shed on the etiology.

The onset of the typical symptoms of the disease is very gradual, and though cases of an abrupt onset are reported, it is very seldom that such are substantiated by careful investigation. Loss of ambition, indifference, sudden and unaccountable fits of temper, suspiciousness, and a desire to be left alone by former friends and companions,—all of these are typical symptoms of beginning dementia precox. Inability to concentrate the attention, lack of judgment and the habit of shifting from one line of work to another, are other symptoms. If there are delusions, though these are not usually among the early symptoms observed, they are apt to be especially noticeable because they are silly. I will not attempt to describe the later symptoms, such as peculiar mannerisms, negativism, mutism, stereotypy, cataleptic conditions, etc., for they only appear when the disease is so far advanced that, as a rule, the patient has already been committed to an insane hospital.

A short account of a patient formerly under my observation will give an illustration of a fairly typical case of dementia precox:—

In this case there was a very marked insane heredity. The father is strong physically, but admits that he is very nervous. The mother was a patient at McLean, twenty years ago, and is at present a woman of very poor judgment and very emotional. She has recently had a nervous breakdown and went for treatment to a private sanitarium. A sister of the mother is at McLean, where she has been for some years. Another sister has been at McLean. A third sister who is in the West, has broken down mentally. A brother was never in any institution but was admittedly unbalanced. The patient's maternal grandfather died of apoplexy and his maternal grandmother had melancholia and died of paralysis.

On the father's side, the history was nearly as bad. An aunt is now a patient at Worcester, while his grandfather committed suicide and his grandmother died of tuberculosis. There is probably even more hereditary taint in the family history, as even this much was only admitted after very close questioning.

The patient himself was delicate as a child and very nervous. He had a strong temper and a stubborn will. He did what he wished and would take advice from no one. He seldom played with other boys, but spent his time working with machinery and electrical appliances. He was fond of music and became very proficient instrumentally. He liked school also, and as he was bright in his studies, was encouraged in this line and went to college, where he graduated with honors. While at college he kept up his music and took work at the Conservatory of Music. He neglected his own comforts, was very irregular about his meals and often did not get sufficient sleep.

After leaving college, he tried several pursuits but never kept at one thing for any length of time. He tried life insurance work, was for a time in a banking office, dropped his work entirely and read German for a few months, formed an orchestra of which

he was the leader, and worked for a time with the men destroying gypsy moths. He enlisted in the navy as a musician but soon disappeared. He was later found working in a machine shop and was arrested as a deserter. He was discharged from the navy because of his mental condition and was committed.

In this case, I believe that much could have been done to prevent his breakdown if he could have been properly held back and not allowed to have his own way in everything. Of course, with a family with such a taint, it is impossible to expect that proper judgment would be used in bringing up such a precocious child, and perhaps the only possible prophylactic measure would have been the prevention of the marriage of two such neuropathic parents.

The fault has been found with most of the text-books on mental diseases, that they go into great detail concerning the etiology, pathology and symptomatology, but are very unsatisfactory in their recommendations for treatment. This is particularly true when the disease in question is dementia precox. White, at the head of the Government Hospital for the Insane, at Washington, whose "Outlines of Psychiatry" is used as a text-book in many of our schools, says, "These cases will, of necessity, have to spend most of their lives in a hospital. It is, therefore, desirable to educate them as early as possible in good habits. They should be encouraged to some form of education, preferably out of doors. Under the influence of hospital surroundings and farm life these cases may get on very comfortably and the dementing process be considerably retarded." This is all he has to say about treatment, with the exception of advising the correction of any functional abnormalities.

The text-books, however, are written as a rule by hospital men, and as they seldom see cases of dementia precox until they are fairly well advanced toward the hopeless later stages, it is not to be wondered at that their views are so pessimistic. If we are treating a case of yellow fever and do not begin treatment until the appearance of black vomit, about all we can do is to arrange for digging the grave.

Let me quote once more from White: "It is to be hoped that some day we shall have a sufficient understanding of character to be able to pick out those types liable to develop psychoses and to protect them from that class of stresses that they are least able to withstand. At present we can hardly be said to approximate to this. The neurotic child, however, can be recognized, and should be safeguarded, especially throughout school life and the period of puberty and adolescence. Some day, perhaps, competent advice will be sought by parents as to the best methods to be employed in the rearing of their children. Until then we are largely helpless in the matter of prevention."

Here is the point that I want especially to emphasize. The man in general practice is the one who can do this best. Those of us who are specializing in this work must keep in closer touch with the general practitioner and encourage him to discover these cases early and begin treatment before irreparable damage is done. These same men in general practice, commit patients to our insane hospitals, but how many of them ever visit the hospital to follow and watch the patients they send there? Perhaps they feel they would be intruders, but I am sure they would be welcomed at any of our hospitals.

Children, whose parents or family have a marked neurotic taint, especially if they show signs of precocious brilliancy, should be closely watched and kept from unnecessary stress. In school they should be held back, and not encouraged by ambitious teachers and admiring parents to outstrip their comrades. Instead, they should be compelled to keep out of doors and enter into games with other children. Bashful little "shut-ins" should be coaxed out of their shells and encouraged to make friends. Those who show especial aptitude for music or art, should not be allowed to spend too much time with these studies at the expense of other necessary, though more prosaic pursuits, for it must be remembered that there is a very thin partition between genius and mental trouble. The child's environment should be noticed. If, as is often the case, it is an only child, it is often well to advise a boarding school, for with all the well-known disadavantages, the close association with other children is better than being too much with "grown-ups."

One other way in which the general practitioner can do yeoman service, is by advising against marriage in every case where it is feared that some neurotic taint might be transmitted to future generations. We are not justified in saying "Marry if you wish, but don't have children." Many a marriage has been unhappy because of an unsatisfied yearning for children. Advice on this subject from the family physician is much more often followed now than formerly, largely owing to the campaign of education carried on by such organizations as the National Committee for Mental Hygiene.

While on the subject of treatment, I wish to make brief mention of the latest development in the treatment of mental diseases. Probably for the very reason that writers on insanity have so little to suggest in the way of treatment, they are apt to follow any new fad that offers hope. The latest fad is psychanalysis, and though it undoubtedly has much of good in it, especially in the treatment of hysteria and neurasthenia, I am much opposed to its use in cases of dementia precox. Without going into its sexual aspect, which repels many of us, it seems to me that dementia precox patients are all too introspective anyway, without any further encouragement. Personally, I have seen this treatment used on only one case of dementia precox, and the apparent results were very bad.

As I said early in this paper, the prognosis in dementia precox is considered bad. However,

recently, numerous recoveries have been reported. Many of these have been for private hospitals, as is to be expected, for they have the advantage of receiving patients early, before the family would be willing even to think of a state hospital. Many of these recoveries would probably show some deterioration on careful examination, but if they are able to return to their homes and lead useful lives, why are they not just as properly classed as recoveries as cases of manic-depressive insanity when the expected usually happens, one or many recurrences.

DIABETES AND SURGICAL OPERATIONS.

BY CHARLES GREENE CUMSTON, M.D.,

Privat-docent at the Faculty of Medicine; Fellow of the American College of Surgeons; Honorary Member of the Surgical Society of Belgium, etc., Geneva, Switzerland.

IT is at present an acquired fact, that diabetics may be submitted to operations of vast import with a successful outcome. To give a general idea as to what can be accomplished I will cite a few cases at random. Chavannaz has operated on five diabetics with one death. These cases were a laryngeal carcinoma, death eight days later; malignant disease of both ovaries, cure; castration for orchiepididymitis, cure; two amputations at the thigh, cure by first intention. Caralp (*Thesis*, Bordeaux, 1912) records one amputation of breast by Willy Meyer's method for an ulcerated carcinoma of breast, cure; three amputations at thigh for diabetic gangrene, all recovered; two hysterectomies for fibroid, both recovered; one palliative curettement for cancer of cervix uteri, cure; five trepanations for mastoiditis, with two deaths. The fatal cases were due, in one to old age, the patient being 76 years old; the other presented acetone in the urine. Richard operated on a buccal cancer successfully, Redard an epulis, Israel several cases of renal cancer and a suprapubic cystotomy, without any deaths. To these cases I may add six of my own, namely, one amputation at thigh for diabetic gangrene, death; one suprapubic prostatectomy, recovery; one strangulated hernia, and one amputation of the great toe and excision of two carbuncles, all successful.

Now, although diabetics are operable, the chances of success are naturally the greater when they have been first submitted to an antidiabetic diet in order to reduce as much as possible the glycosuria. This diet should be followed until the patellar reflex has returned, if it was found absent. The treatment should be very minute in all details, although it must be admitted that operation has been successful in instances in which time has not permitted a long period of diet and antidiabetic treatment. It goes without saying, that when the operation is not urgently indicated one should carefully prepare the patient, selecting either Bouchardat's or Cantani's regimen as being the most rigorous.

My cases were submitted to a diet of broiled meat, potato and gluten bread, with the administration of bicarbonate of soda and Vichy water. Antipyrine and lithium carbonate are also of value. The present-day diet generally employed seems to be roasted or broiled meats, purée of green vegetables and gluten bread. This regimen is advantageous, inasmuch as it diminishes the hyperglycemia. Alkalines particularly favor oxidation of organic substances and by their use the urine becomes less dense and less acid, the urea increases in amount, while the uric acid and albumin decrease, likewise the amount of sugar present.

The drugs resorted to as antidiabetic are more for the purpose of reducing the glycosuria than the hyperglycemia. Opium checks the thirst, diminishes the hunger and limits the glycosuria. It may be given in the form of Dover's powder, morphine or codeine combined with belladonna. In debilitated patients strychnine is useful, or when there is a diminution of sight or atony of the digestive functions. Valerian and arsenic act on the metabolism. The former drug has a favorable action on the polyuria and polydypsia, it also decreases the urea. Arsenic acts as a vascular tonic and influences metabolism, but its results are, on the whole, doubtful. In moderate doses, glycerine may counteract the loss of flesh. Ricord, long ago, prescribed iodine in sudden recurrence of diabetes, while the tincture of iodine, 5 to 20 drops at meals, has been given by Bérenger-Férand, and the syrup of the iodide of iron by Bouchardat.

Various acids have been prescribed, such as carbolic, nitric, salicylic and phosphoric, likewise, sodium salicylate, chloral, cocaine; astringents, like alum, tannin, etc.; oxidants, such as potassium chlorate or permanganate, inhalations of oxygen, etc. Antipyrine has given remarkable results, but as soon as it is stopped the sugar returns in the urine. The hydrochlorate and valerianate of quinine have given good results. Bar and Blum praise glutaric acid as a very active antiglucosuric remedy. But besides a proper diet, I believe that bicarbonate of sodium, the salts of lithium and antipyrine, represent the surest means of controlling the morbid process.

When once we have the diabetes under control, the analysis of the urine having shown a constant decrease in the amount of sugar from the effect of treatment, and having revealed no evidence of a serious lesion of the renal or hepatic glands, the reflexes being normal, what is the next step to be taken by the surgeon? I am firmly convinced that the diabetic diathesis plays no part in the complications arising after a surgical operation. It only acts by depressing the organism and facilitating infection, the

sugar present in the tissues being an excellent medium for the growth of bacteria. Then, too, experience has demonstrated that anesthesia and the operation *per se* are factors to be considered.

Years since, the great Claude Bernard showed that glycosuria occurred after the administration of chloroform from irritation of the terminal filaments of the pneumogastric, and all surgeons are aware that in normal subjects temporary glycosuria after chloroform is not uncommon. Chloroform undoubtedly disorganizes the hepatic and renal cells and reacts on the nervous system. Ether is not free from criticism, and the same may be said of ethyl chloride and somnoform. It is, in my opinion, safer to resort to local anesthesia when possible, but if general narcosis is required, it should be of as short duration as possible, the quantity of the anesthetic being reduced by a preliminary narcosis with somnoform or ethyl chloride.

The most absolute asepsis is required. It is not the sugar circulating in the blood wherein resides the danger, but the association of pathogenic bacteria with the sugar. Then, as diabetics are weak physically, it naturally follows that the loss of blood is to be avoided.

There are certain affections which are more or less dependent upon the diabetes, such as abscess and carbuncle. General pathology teaches us that the greater the acuteness and intensity of the infectious process, the more rapid and free shall be the surgical interference. Therefore, in diabetics particularly, large and free incisions are to be made in the abscesses, and in the case of carbuncle the lesion shall be freely excised. The same may be said of diabetic gangrene, which results from an excoriation or a small wound. Local treatment is useless and high amputation of the limb is essential if a successful outcome is to be obtained. Frequently after these major amputations the sugar will be found in lesser quantity than before the interference. Let it also be said that a temporary glycosuria has been met with in cases of extensive abscess or carbuncle which has led the surgeon to suspect diabetes, but free drainage of the septic focus in the one, and excision in the other, has led to the disappearance of the sugar in the urine.

To sum up the question, I would say that in all cases of diabetes requiring operation, when the latter is not urgent for the saving of life, the patient should first be put upon a strict diet and treatment with drugs. When the glycosuria is sufficiently under control the operation may then be proceeded with. The reflexes should be nearly normal for a good prognosis, although this is not absolutely necessary. The urine should not contain either acetone or B. oxybutyric acid. The presence of urobilin or albumin should be a warning against interference. The quantity of urea secreted should be nearly normal. The length of time required for the operation and the quantity of the anesthetic given should be reduced to a miniumm, likewise the loss of blood.

Clinical Department.

THE SIGNIFICANCE OF EARACHE.

By Irving Sobotky, M.D., Boston.

"Doctor, I have a terrible pain in my ear." This statement, so often heard and so often made light of by the physician, should be the same danger signal to him as severe pain in the right iliac fossa and should be watched just as carefully as a case of acute appendicitis.

Too often the complaisant practitioner does not recognize the seriousness of earache and believes his duty done when he orders hot sweet oil to be dropped into the ear.

Now, what must the physician consider from the one symptom of earache? He must think of acute otitis media, acute catarrhal otitis media, furuncle of the auditory canal with or without diffuse inflammation, otalgia dentalis (earache due to decayed teeth). Neuralgia, affections of the maxillary antrum and tuberculous laryngitis cause referred pain in the ear, but are beyond the scope of this paper and are only mentioned as possible causes of earache in the absence of any other etiological factor.

By far the most common and the most dangerous cause of earache is an acute otitis media. Dangerous, because it can rapidly develop into a mastoiditis and a meningitis, especially in children. That is the reason why it must be recognized and treated at once; why every effort must be made to detect the tenderness on pressure, that is present when the mastoid antrum becomes involved and why the case must be referred to a competent otologist the instant there is the slightest evidence of the existence of this mastoid tenderness. Only an otologist is capable of treating a mastoiditis.

In order to recognize the condition causing the pain, the physician must be familiar with the normal appearance of the tympanum and thus be able to compare it, intelligently, with the picture presented by an acute otitis media. The text books on otology, give clear descriptions and pictures of the normal appearance of the tympanum. This study should be supplemented by the examination of normal ear drums and the identification of the landmarks.

Before examining the patient, however, these three questions can be asked. How long have you had the pain? Did the pain keep you from sleeping? Is there any discharge from the ear? The first question gives the examiner some idea of the duration of the infection. The second is a measure of the severity or intensity and the third raises the question of sufficient drainage.

A satisfactory examination of the ear cannot be made unless the ear is thoroughly wiped free of any cerumen or secretion, but it must be

borne in mind that this cleansing will produce some hyperemia, both of the tympanum and of the auditory canal.

The picture presented by the affected tympanum should now be compared with the normal. If the tympanum is of a scarlet red shade and bulges into the auditory canal and the long process of the malleus is invisible, a diagnosis of acute otitis media (suppurative) can be made. However it is not always easy to make the differential diagnosis between a suppurative and a catarrhal otitis media, especially in the early stages. As a rule the pain is much more severe and the temperature from one to two degrees higher in an acute suppurative otitis media.

As in abscess formation in other parts of the body, complete drainage of the middle ear cavity must be immediately established by means of a free, curved incision of the tympanum, or in other words, a paracentesis must be done even if the ear has commenced to drain.

If the tympanum is a yellowish red color with wavy, hair-like lines running across (exudate lines) with perhaps a few small air bubbles in the lower posterior quadrant and the pain not especially severe nor the temperature above 100 F a diagnosis of acute catarrhal otitis media must be made. In this condition the malleus is visible but the long process shows hyperemia sometimes of a high degree. At the onset of a severe catarrhal condition the appearance of the drum is very similar to the acute suppurative middle ear.

The treatment is the same as the suppurative type, namely, a paracentesis but in contrast, if there is no free drainage after the paractentesis has been done, the middle ear should be gently inflated, per Eustachian tube, and the secretion thus forced through the incision in long, tenacious, mucous strings.

As a proper paracentesis is the essential treatment, the technique will be described.

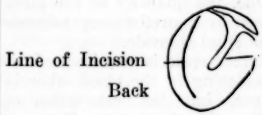
It is usually not necessary to use a general anesthetic; a local application of equal parts of menthol, cocaine and carbolic acid mixture, will give a high degree of insensibility to pain if applied to the tympanum, for five minutes, in the form of a soaked cotton tampon.

A free incision is best obtained by the use of a sharp paracentesis knife, shaped like a scalpel or curved bistoury. The arrow head shaped paracentesis knife is unsuitable.

Previous to the operation the canal should be mopped out with cotton moistened with alcohol. The instruments should be sterilized with alcohol or by boiling, and the hands should be carefully sterilized.

After sterilizing the knife, the ear speculum, and the hands, the index finger of the left hand should be placed in the convolution of the auricle, just above the external meatus and traction exerted in an oblique direction, upwards and backwards in adults, and downwards and slightly backwards in young children. This straightens the canal. With the patient's head firmly held, the knife should be introduced along the posterior part of the floor of the canal, with the cutting edge directed upwards. With an *absolutely clear* view of the tympanum the curved incision should be made in the posterior quadrant by puncturing the tympanum almost at the lower border of its attachment and incising from below, upwards. (See cut.)

Care must be taken not to insert the knife so deeply as to wound the promontory mucous membrane. After wiping out the discharge and the blood a cotton wick should be placed in the canal and instructions should be given to syringe the ear every two hours with a pint of hot boiled water, the ear syringe to be boiled at each syringing.



The patient should be seen every day until the discharge has ceased and every effort should be made to encourage free drainage as the acute symptoms may return should there be any obstruction to the flow of pus. Should these symptoms recur it is well to repeat the paracentesis.

The great danger of mastoiditis developing from an acute otitis media should compel the physician to examine very carefully the mastoid region at each visit. The neglect of the early mastoid symptoms may result in intracranial infection or in the necrosis of the anterior wall of the mastoid antrum and of the tip of the mastoid process, the abscess here showing itself as a large post auricular swelling with sometimes a burrowing of pus along the neck muscles.

As it is very necessary to differentiate between mastoiditis, and an inflammation of the auditory canal, the symptoms of both will be given:—The mastoiditis symptoms are chiefly those of pressure from the secretion in the mastoid cells. Pain, swelling, some redness and marked tenderness on finger pressure over the mastoid process together with a high temperature and constitutional symptoms are the distinguishing features of mastoid involvement. On examination with the ear speculum, a bulging may be seen in the posterior and superior wall of the canal, although this is by no means always present. Inflammation of the canal, with or without furuncle, causes great pain in the region of the ear, aggravated by moving the auricle up and down and by chewing. The diffuse inflammation may simulate the redness and bulging of the posterior superior wall of the canal in mastoiditis but differs, materially, in situation; the mastoid symptom being posterior and in the bony part of the canal, while the canal inflammation produces swelling in the in-

ferior wall of the anterior cartilaginous portion of the canal. The temperature is much lower than in mastoiditis and constitutional symptoms are lacking or very slight.

In all otitis media cases the throat and nasopharynx should be examined for enlarged tonsils and adenoid. The relationship of adenoid to frequent attacks of otitis media has been conclusively proven, hence it is the duty of the physician to *completely remove* the adenoid and enlarged tonsils after the acute symptoms have subsided. When removing the adenoid it must be the aim of the operator to remove all of the adenoid tissue, as a large central adenoid may not cause anywhere near the trouble that bits of adenoid tissue can produce in the fossa of Rosenmüller and around the Eustachian orifice.

Furuncle of the canal is a frequent cause of earache, but the pain is not as deep seated as in otitis media although it is usually more exquisite. Furuncle can readily be diagnosed as it is easy to see and moving of the auricle causes severe pain. The characteristic red swelling, about the size of a pea, extremely tender to probe touch and situated at or near the external meatus is in decided contrast to the findings in an otitis media.

The treatment of furuncle of the auditory canal consists of a free incision, under local anesthesia, the application of dry heat, and tampons of 10% ichthyol and glycerine or 3% carbolic and glycerine or 5% aluminum acetate solutions, renewed every three hours.

Impacted cerumen may cause pain in the ear but it is not severe. The presence of cerumen is easily determined and the treatment self evident.

If the ear has been carefully examined and no cause discovered for the pain, the teeth should receive the examiner's attention. Pain due to bad teeth is often referred to the ear and the prompt dental treatment of such a case will eliminate the earache.

In the absence of any of the above named conditions, the patient should be referred to a neurologist for an opinion as to the likelihood of neuralgia.

If the underlying cause is a tuberculous laryngitis or empyema of the maxillary antrum, the symptom complex will be sufficient to determine the diagnosis.

It often happens that patients complain of repeated attacks of earache either with or without suppuration. This is due, in the vast majority of cases, either to the naso-pharyngeal secretions being forced into the middle ear through the Eustachian tube, or by the blocking of the drainage by adenoid tissue at the Eustachian orifice. Hence every patient with such a history must be forbidden the use of nasal irrigations and must be warned against blowing the nose violently and thus forcing secretions into the middle ear.

If any adenoid tissue is present it is, of course, essential to remove it, as stated above.

SUMMARY.

This paper is intended as a plea to the practioner to treat earache with the respect it certainly deserves and as an aid to him for the recognition of the conditions causing the symptom.

Therefore these points are to be emphasized:

1. The cause of the earache must be determined.
2. Treatment must be prompt.
3. The patient must be closely watched for complications (mastoiditis).
4. If complications develop, despite careful treatment, the patient must be immediately referred to an otologist.
5. In repeated attacks of earache, nasal irrigations and violent blowing of the nose must be prohibited.
6. Enlarged tonsils and all adenoid tissue must be removed.

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

THIRTIETH ANNUAL MEETING HELD AT WASHINGTON, D.C., MAY 6, 7, 8, 1913.

The meeting was called to order by the President, DR. CHARLES L. MINOR, Asheville, N. C.

He said that this Association was the first society in the United States to pay special attention to tuberculosis. Valuable papers on climatic treatment, careful studies on the use of tuberculin, pioneer work on nomenclature and classification, important papers on early diagnosis and on pneumothorax, and many others which had a strong influence on the development of an interest in tuberculosis in this country can be found in the 28 volumes of Transactions. A glance at the list of officers and directors of the National Association for the Study and Prevention of Tuberculosis shows that the members of the Climatological Association have been active and prominent in it from the start, and that the latter is in justice the parent of the national society. The Association has made a study of mineral springs and climatic resorts. Dr. Minor outlined his plans for widening the scope of the Association.

DR. JAMES DUDLEY MORGAN, of Washington, presented a paper on "The Effect of Climatic Changes on Rheumatism and Neuritis." Rheumatism is a disease of temperate climates; it is not always most common in winter; it is most common in adolescence and manhood, when the powers of resistance are greatest, and in moderately low temperature accompanied by moisture. Soil and climate *per se* have little to do with rheumatism, but may lessen the resistance and render the system more open to attack. Bad ventilation favors the occurrence of rheumatism. Rheumatism, neuralgia and gout are made worse by the approaching storm. The case of Captain Catlin, described by Dr. Weir Mitchell in his article on the "Relation of Pain to Weather,"

published in 1877, was referred to. Dr. J. M. Roddy's article on "Weather Forecasts and Health," 1898, was quoted.

DR. HENRY SEWALL, of Denver, read a paper on "Auscultatory Determination of Early Pathological Changes in the Lungs." Dr. Sewall said that through auscultation of the voice and whisper we have unrivalled means for the detection of minute tissue changes throughout the pulmonary region; with these are included vocal fremitus and percussion resonance. The more marked tactile fremitus and vocal resonance, distinguishing the right from the left apex of the normal lungs, depends on the immediate contiguity of the former structure, with the resounding trachea, whose vibrations are thus transmitted transversely through the pulmonary tissue. Any infiltration of this tissue which improves its conducting or resonating properties must amplify and extend the sounds heard in auscultation. It is necessary to analyze the sounds into those vibrations due to resonance of the viscera and those of the chest wall. The latter vibrations can be damped by pressure of an appropriate form of stethoscope.

Vibrations transmitting the whisper are confined almost wholly to the viscera. Modification of the voice sounds by which their quality becomes more amphoric and their duration prolonged into an echo are the striking characters which, when accentuated by stethoscopic pressure, indicate pathological changes in the viscera. This method of examination reveals the intensity and distribution of morbid changes within the lungs, even when these changes are too slight to appeal to the senses through any other method.

DR. J. N. HALL, Denver: For nearly twenty years Dr. Sewall and I have had opposite sides of the same ward of the City Hospital, and I have seen the cases as they came in. I wish to testify to the striking work that he has done. I have seen him diagnose cases which were positively unique.

DR. W. H. SWAN, Colorado Springs: Dr. Sewall speaks of the value of the x-ray in showing the early stages of tuberculosis. I think we sometimes overlook very marked signs by ordinary examination when the x-ray shows them very distinctly. I recall now a case where several experts failed to recognize a well-marked and large cavity, but the x-ray showed a very distinct cavity, with definite outline and thickened wall. Even after it was demonstrated by the x-ray there were absolutely no physical signs to show it. This must lead us to be very cautious as to many of our physical findings.

DR. WILLIAM LEROY DUNN, Asheville, N. C.: I would like to know what particular formula the doctor has found especially adapted in this whisper voice in bringing out the best evidence.

DR. SEWALL: I direct the patient to repeat the words, "one-two-three" and note the prolongation of the sound from one syllable to the other, as well as the change in quality. If what I have said is true there is rarely need for any tuberculosis except in certain particular instances, to reach the open stage. My thesis is that the procedures of physical diagnosis within our reach are capable in the vast majority of cases of disclosing the presence of glandular and pulmonary tuberculosis in a stage so early that not only is the patient still non-infective, but is capable of responding to the curative measures of hygienic living.

DR. P. M. CARRINGTON, of the U. S. Public Health Service, read a paper on "The Climate of San Diego, California, with Relation to Renal Diseases." The author had recovered from a tubercular infection in New Mexico, and afterwards derived great benefit from a two years' residence in San Diego, where he was sent to recuperate from an attack of nephritis. The rainfall of San Diego is given as ten inches, occurring from October or November until March. The relative humidity ranges from 67% in December to 80% in July, with a mean annual of 75%. Occasionally temperatures of 100° F. have been recorded, and as low as 32° F. The equability of the climate is marked. The climatology of nephritis was discussed with special reference to the San Diego region. Cases were cited to show the benefits derived in this class of cases. It is a climate which necessitates no seasonal change of clothing, and suitable fruits and vegetables are grown all the year, making proper diet obtainable.

DISCUSSION.

DR. POTTENGER: We know there is a very great difference in the climatic conditions of places comparatively close together, because Los Angeles has one climate, Santa Barbara has a still different one, San Francisco still another. San Diego is particularly suited to this type of disease, having a very equable climate, free from rapid changes. At Monrovia, one hundred miles away, our daily variation is thirty degrees. If you will take the temperature at 7o'clock in the morning and add 30 degrees you will have the maximum temperature for that day.

DR. A. C. GETCHELL, Worcester: Many of the patients that I have to do with from time to time owe their troubles very largely to the effect of the climate in which they are living, and I hope that the men who live in these better climates will continue to impress upon us their importance in the treatment of pulmonary tuberculosis. It is true that it is impossible for large classes of patients to take advantage of the better climates. There is a growing tendency toward treatment of disease by hygiene and diet, and other matters which pertain to biology of the system. I think that the quality of atmosphere lived in and breathed is an exceedingly important matter in the treatment of disease, and the value of climate cannot be too persistently impressed upon us.

DR. CASSELBERRY: A brief sojourn at San Diego some years ago tends to confirm its climatic advantages as described by Dr. Carrington. There is not only equability of temperature, but the general quietude is conductive to equanimity of mind, with a disposition to get out into the sunshine, and but little disposition to do anything else.

DR. GEORGE W. NORRIS, of Philadelphia showed a series of lantern slides made from frozen sections of the cadaver, illustrating various anatomical relations of importance in thoracic diagnosis, such as: The relative distance of the lungs and heart from various points on the thoracic wall. (2) The causes for the physiologic differences in tactile, auscultatory and percutory findings on the two sides of the chest. (3) The position of the heart and lungs in cases of pleural and pericardial effusion. (4) The location of early and late tuberculosis lesions of the lungs. (5) The location of the cardiac valves in relation to each other and to the anterior chest wall.

Dr. Philip King Brown, of San Francisco, showed lantern slides illustrating the frequency and extent of peribronchial lymph-gland tuberculosis in cases with some constitutional symptoms without marked physical signs. The general tendency of infections from this source to extend upward to the apices, the plates showing the various stages of this extension. In general, the contribution of x-ray plates of the chest aids in the diagnosis of tuberculosis of the lungs.

Dr. J. C. Wilson, Philadelphia, read a paper on

BLOOD-SPITTING IN HEART DISEASE.

The syndrome hemoptysis occurring in cardiac cases is better studied in office work than in any other clinical relation. Its incidence is much more frequent than the literature would indicate. It is often overlooked in history-taking. Brief statistical studies: the clinical variations; the association with pulmonary lesions; difficulties in diagnosis; immediate and remote prognosis. Remarks upon treatment.

DISCUSSION.

Dr. J. M. Anders, Philadelphia, Pa.: I wish to emphasize the difficulty that I have met with in a few cases in differentiating aortic insufficiency associated with hemorrhage of the lungs from pulmonary tuberculosis. It is true that cases of aortic insufficiency associated with pulmonary hemorrhage form but a small percentage of the total. On account of certain symptoms, such as flushes and night sweats leading to exhaustion and blood spitting, all of which may arise in aortic regurgitation, this disease may bear a close resemblance to pulmonary tuberculosis. I agree with Dr. Wilson that the incidence of blood-spitting in cardiac diseases is greater than has been supposed. In the treatment, also, I fully agree that no special form of medication should be instituted, except in the very few instances where there is great exhaustion.

Dr. DeLancey Rochester, Buffalo, N. Y.: I do not think that we can always positively say that hemoptysis is due to heart disease alone without further inspection of the lung. I call to mind one case, exceedingly instructive, of a young lad with rheumatism, with an endocarditis, mitral stenosis and aortic insufficiency combined,—a combination which I rarely have seen. He came in spitting blood, and no tubercle bacilli were found in his sputum. He improved decidedly, and finally got up and was moving about the ward. He was suddenly taken with severe pain and hemorrhages, and he had all the signs of a pulmonary infarction. Tubercle bacilli appeared in his sputum. There was a case which would undoubtedly have gone without appreciation of involvement of the lung, except that he was under observation. The boy finally died of tuberculosis. Unfortunately, an autopsy was not allowed. Within the last two years there has been brought forward in Buffalo through the studies of Dr. Bush and Dr. Clowes, Dr. Bush being the professor of physiology, and Dr. Clowes assistant in the New York State Cancer Laboratory, a means of treatment of hemorrhage which has proved very successful in various cases. This is the production of a serum from which the antitrombine, which is normally in the blood, is removed by their method of procedure. I will not go into detail because a paper will be published in the *New York State Medical Journal* in regard to this matter. About 15 c.c. of the solution is made, and is injected subcutaneously, or in some cases intravenously, I think, which has as good results in one way or the other. These injections stop hemorrhage in many cases. In 5 cases, 3 of pulmonary tuberculosis and 2 of hemorrhages of the stomach, the results have been remarkable, the hemorrhage stopping within a few hours after the injection of the serum, and not recurring. Sometimes a number of injections are necessary, but I understand that this material will be put upon the market soon from one of the large manufacturing houses. Of course all hemorrhages cannot be stopped with a serum, but I think it is well worth considering.

Dr. J. H. Elliott, Toronto, Canada: I would like to relate one case, a woman about 36 years old, who has had recurring hemorrhage for some 15 or 16 years; they were supposed to be due to pulmonary tuberculosis. No tubercle bacilli had ever been found, but when I first examined her I found a fibrous condition of the right apex. The signs were slight, however. During the first two hemorrhages I could find no physical signs in the lungs. On the third occasion I was rather surprised to find the signs in the left apex, opposite to that which I had diagnosed formerly as tuberculous. At this time there was present, which I had not found before, a murmur of mitral regurgitation. The heart was somewhat enlarged; I had an x-ray made of the chest, and with the fluoroscope there was a pulsating tumor on the descending arch of the aorta, the side on which the physical signs of hemorrhage had appeared.

Dr. J. C. Wilson, Philadelphia: The importance of blood-spitting in heart disease depends on two facts. First, that in the great majority of cases the blood lost is very small and the hemorrhage occurs at long intervals. Its symptomatic value may for this reason be wholly overlooked. Second, that hemoptysis, to many practitioners, suggests disease of the lungs rather than disease of the heart. Hence uncertainties, even errors, in diagnosis. The difficulties in diagnosis are increased by the occasional occurrence of copious blood-spitting in heart disease and in associated cardiac disease and pulmonary tuberculosis. The necessity of a correct diagnosis in any given case arises from the facts that blood spitting in heart disease tends to relieve congestion and is often followed by relief of symptoms and does not really call for energetic treatment; whereas the blood-spitting of lung disease usually demands active therapeutic measures, and is liable to be followed by fever, broncho-pneumonia and an extension of the original process.

Dr. Joseph H. Pratt, of Boston, made a communication on "The Action of Carbon Dioxide Baths on Blood Pressure, with a description of a new functional Test of Cardiac Efficiency." The author has been making these observations on carbon dioxide baths for eight or nine years. Shortly after these baths were employed in heart disease the claim was made that the pressure was raised because it was thought desirable in these cases to raise it; later the announcement was made that the action was to reduce blood pressure. Gottfried Müller, in careful studies of the action of these baths in healthy subjects, concluded that their chief action on the blood pressure was dependent on the temperature of the water. Dr. Pratt used a bath of

40 gallons of water at 90° F. for ten minutes, containing 1000 c.c. strong hydrochloric acid and 1000 gms. of sodium bicarbonate. He does not use calcium chloride or sodium chloride. In a case of moderate cardiac inefficiency there will generally be a silght elevation of the blood pressure. He found also that in cases of marked cardiac inefficiency there was a fall of pressure at that temperature. Dr. Pratt advanced the opinion that the response of the blood pressure in a given case of heart incompetency, when treated by carbon dioxide baths of the strength noted, is an index of the degree of the incompetence, and in case of a fall this plan of treatment would be counterindicated.

DR. JUDSON DALAND of Philadelphia read a paper entitled "Clinical Observations on Blood-Pressure." Dr. Daland prefers the mercurial instrument as being more accurate. Diastolic pressure observations are often omitted whereby valuable information obtained from a study of the low and mean pressure is lost. Repeated examinations were advised. The whole subject was analyzed. Time of day, occupation, position, temperament and circumstances connected with a visit to the physician's office modify the record. Extraordinary variations, all tending to hypertension, are observed in the neuropathic. Driving an automobile for two hours through crowded streets caused an increase of 30 mm. in the systolic blood-pressure and 15 mm. in the diastolic. Neurotic women, experiencing fright when having pressure measured, have a marked rise. Hypertension due to uremic states is usually uninfluenced by most drugs. In a case of Addison's disease with great destruction of the adrenals, the systolic pressure was 90 mm., and the diastolic pressure was 70 mm.

(To be continued.)

Book Reviews.

Practical Prescribing, with Clinical Notes. By ARTHUR H. PRICHARD, M.R.C.S., L.R.C.P., R.N. London: Henry Frowde, and Hodder and Stoughton 1913.

This volume in the Oxford Medical Publications series is essentially a case-history book in internal medicine,—the first of its type in England. The author's aim was to supply information of service to students and practitioners wishing to obtain practical knowledge of prescribing. The common medical diseases are grouped under convenient pathologic or regional headings, and each is illustrated by one or more selected, epitomized cases, with treatment, note, and comment. Though somewhat different in mode of presentation, the method is essentially that familiar in the highly successful American case text-books. The value and vitality of this method of instruction are now so well recognized in this country as to require no further comment. The present volume is evidence of the beginning development of a similar advance in British medical teaching.

The Practitioner's Practical Prescriber. By D. M. MACDONALD, M.D. London: Henry Frowde, and Hodder and Stoughton. 1913.

This small volume in the Oxford Medical Publications series is intended as a pocket formulary and epitome of symptomatic treatment. Portions of it have already been published discretely in the *Clinical Journal*, the *Practitioner*, the *Hospital*, and the *British Medical Journal*. The first part, comprising about three-fourths of the book, is an alphabetic syllabus of the therapeusis of common diseases from abortion to whooping-cough. The second part consists of juvenile and adult posologic tables; the third gives practical directions and points in prescribing; the fourth enumerates the common incompatibles; the fifth consists of "therapeutic brevities"; the sixth describes the treatment of emergencies in everyday practise; and the remaining sections deal with diet tables, gavage, recipes, duration of pregnancy, and other miscellaneous information. On general principles, one does not approve such rule-of-thumb reference books and compendia, but the present manual seems in the main accurate and as little objectionable as any of its class.

The Deaths of the Kings of England. By JAMES RAE, M.A., M.D. London: Sherratt and Hughes. 1913.

From time to time during recent years there have appeared in the *British Medical Journal* interesting articles on the death-beds of several British monarchs. Further study on this subject is, however, now made superfluous by this admirable and absorbing work of Dr. Rae. He has collected from records and historic manuscripts the authentic original data in the case of each king, or ruler, and of his consort, presenting a complete case-history series, with diagnostic discussion, from William First to Fourth. Moreover, in his introduction, he has analyzed this series of cases, classifying the various causes of death, as in vital statistics. Interestingly enough, in spite of the almost continuous relationship between the patients, there is a striking absence of familial or hereditary disease. Chronologically the kings fall roughly into groups, in which the cause of death corresponds approximately with the conditions of life. The early, campaigning kings, died of trauma or dysentery, those of medieval times by infection, those of recent times of pulmonary, cardio-renal, or circulatory disease.

The volume is not only an excellent piece of medico-historical research, but might to advantage even be employed as a text-book for case-teaching in clinical diagnosis. The author deserves the greatest praise for the scholarly and scientific accuracy and literary merit of this unique monograph.

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TUBERCULOSIS FOLLOWING TYPHOID FEVER.

SOME time ago Lieutenant-Colonel Charles F. Woodruff of the Medical Corps, U. S. Army, now retired, became impressed with the idea that tuberculosis was extremely apt to follow typhoid. During the past two years he has been engaged in extended and painstaking researches in this country and in Europe, with a view to ascertaining whether this were actually the fact or not, and in an elaborate paper read at the January meeting of the Medical Association of the Greater City of New York he made the distinct claim that there is a definite relation between the two diseases. Some preliminary comment on this paper was made in the issue of the JOURNAL for Feb. 12 (p. 259).

It is not strange, he thinks, that medical literature should be so devoid of studies regarding this matter when we consider that the long interval which may elapse between the beginning of tuberculous activity and the onset of symptoms generally prevents the discovery of the activating cause. Consumptives appear to have had more typhoid than the rest of the population, though there is no way of determining this point accurately. Statistics which were quoted indicate, however, that such is probably the case, and there are other facts which, taken together, are believed to show a relationship between typhoid and tuberculosis, though each by itself is of little value. Thus, the mortality curve of tuberculosis, which rises rapidly from childhood, reaches its maximum before thirty and declines after thirty-four, while the maximum in the curve of typhoid is reached at fifteen and declines after twenty-five. The curve of tuberculosis seems to follow that of typhoid after an interval of about nine years, and the average length after tuberculosis is said to be seven years. This might mean, therefore, that the typhoid, mostly contracted before twenty-five or thirty, has been partly responsible for raising the maximum mortality from tuberculosis nine years later. Again, it is significant of the relation of typhoid to tuberculosis that males predominate in the deaths from both causes. Furthermore, where typhoid fever is prevalent there should be more tuberculosis than in places free from typhoid, and variations in the typhoid death-rate should be followed by similar variations in the tuberculosis deaths there. It is also evident that in a place where tuberculosis is quite common, typhoid should have more effect in increasing the death-rate from tuberculosis than in places having little tuberculosis.

These propositions, Colonel Woodruff believes, would seem to be proved by a series of charts which he found in the Office International d'Hygiene Publique in Paris, in which it is worthy of note that the two curves show more or less parallelism throughout the civilized world. On the charts are given the curves for other infections,—smallpox, diphtheria, scarlet fever, and plague; but these came in epidemics, and presented irregularities having no apparent relation to the two endemic diseases. Unfortunately, neither measles nor whooping-cough, which, together with typhoid, he regards as the diseases most frequently followed by pulmonary tuberculosis, was considered of sufficient importance to record, and there is no means of determining how far they were responsible for irregularities in the curves. The curves indicate, in general, that for every reduction of five deaths by typhoid there are more than three lives saved from death by tuberculosis in the time covered by the charts. Karl Pearson, the eminent statistician, warns, indeed, against drawing conclusions from parallel curves, as it not infrequently happens that there are two independent causes at work, one for each set of facts, and wholly unrelated; but in view of the evidence that typhoid is frequently followed by tuberculosis, Colonel Woodruff thinks there can be no reasonable doubt that the reduction of

typhoid is responsible for a good share of the modern reduction of tuberculosis.

He stated that in the United States Army the dependence of tuberculosis upon typhoid was seen after 1890, when, as in civil life, bacterial diagnosis became more common; but after antityphoid vaccine was widely used, tuberculosis ceased to decline with the typhoid. Major F. F. Russell of the Army Medical Corps, who was largely instrumental in having antityphoid vaccination introduced into the army, was one of those who participated in the discussion of the paper, and he took issue very decidedly with its author in regard to the latter statement. If, he said, the contention were true that such vaccination activates tuberculosis, there should have been some increase in the amount of tuberculosis in the army; whereas the records published in the annual reports of the Surgeon General distinctly showed that for the past five years, during three of which antityphoid vaccination had been compulsory, there had been a steady decline in the disease.

REORGANIZATION OF THE MASSACHUSETTS STATE BOARD OF HEALTH.

THE recent report by a surgeon of the United States Public Health Service upon the public health administration in Maryland is of particular interest at this time in Massachusetts since the question of the reorganization of the State Board of Health has come up. Dr. Fox made a careful study of the state department of health and under agencies, having sanitary functions, in the state of Maryland. His study continued during the last six months of 1913. Some of the conclusions are particularly timely.

"From this investigation it is seen that the state board of health has been merged into a department in which, however, it retains the executive control and quasi-legislative powers. Since the board does not sit constantly, however, in the interim of meetings the duties arising must be performed by the executive officer of the department. At least theoretically, therefore, the responsibility and the power of initiation to meet emergency does not appear to rest squarely enough on the administrative official whose duty it is to handle the executive work."

"Furthermore, by reason of the method of appointments on the state board of health it would be possible at any time for its personnel to be so changed for political reasons as to include members without the necessary knowledge of public health needs. While the present board is composed mainly of men of eminence in public health matters, who support the secretary in his actions, it might at times become political at the will of the governor of the state."

"Generally speaking, state boards of health by reason of their organization and slow-moving methods are not in position to exercise all the functions which should be required of a department of health. The state department of health should be able to act quickly and efficiently, and in our opinion this can best be accomplished when it is presided over by an all time health official who has as his subordinates a sufficient number of capable bureau chiefs and a board or council composed of public officials, business and professional men, to act in an advisory capacity only. This officer should have the power of initiation and he should have as a part of his department an adequate county or district health organization which should be subject to the control of the state department and work under it for the prevention of disease and the improvement of the public health."

"It would appear to be the modern tendency to place organizations such as departments of health under the control of one head, as instanced in the states of New York and Pennsylvania, and in the Philippine Islands."

The argument seems to us to be sound. We believe that the same conditions and the same reasons which induced the special public health commission of the state of New York to recommend, and the New York legislature of 1913 to vote to change a state board of health into a system of a single highly paid commissioner of health with an advisory board hold equally well in Massachusetts.

There are a number of bills before the present legislature with the view of reorganizing the state board of health. Practically all of them call for a paid board of several members. According to the Public Health Bulletin, No. 54, of the United States Public Health Service, only one state has a paid board of health. The other states have either unpaid boards or a single commissioner. It seems to us that the tendency of the times and the weight of authority is entirely in favor of the single commissioner of health with an advisory board. Experience has shown that men of large calibre and of great experience in public health will give freely of their time

to the state in an advisory capacity. The entire time and services of such men cannot be secured by the state on paid boards. If the state board of health is to be reorganized, and on the whole reorganization seems desirable, we disapprove of the paid board of health and heartily endorse the system of a single highly paid commissioner of health in authority, with an advisory unpaid board.

UNIFORM CHILD LABOR BILL.

THE legislature of 1913 made an important step in public health by passing in its essential form, the uniform child labor bill. The uniform child labor bill had been carefully considered for a number of years and was adopted by the Commission on Uniform Laws only after prolonged careful study. The essential part of the bill was the reduction in the hours of work for children under sixteen, from ten hours a day to eight hours a day. In other words, it made compulsory in all the occupations throughout this state, the standard hours of work that are accepted by the state and by most municipalities when they employ labor. From a public health point of view, this was a sane step towards a better and healthier class of workers. It is generally agreed that to attach a child of fourteen to a machine for long hours each day makes that child prematurely old. The reduction of a working day to eight hours is little enough, but it gives a child from fourteen to sixteen some opportunity for out-of-door exercise and recreation, and counteracts to some extent the serious effects of fatigue upon the nervous system.

As might be expected a number of bills have been introduced into the Massachusetts legislature this year either to repeal or to modify this law so that children under sixteen can again be worked ten hours a day. In the daily press there have been featured some irresponsible statements that the child labor law of 1913 has thrown children out of work and has allowed them to roam the streets in idleness.

Careful investigation of the facts has shown, in the first place, that few children have been discharged. In most instances in Massachusetts, as in Ohio, the mills have found little difficulty in adjusting the eight-hour day of children under sixteen to the usual working day of ten hours, which holds for the other workers. In the second place, the hardships in individual families brought about by this change have been almost negligible.

It would be surprising indeed if some little hardship did not come to a few in order that large numbers might be benefited. It is inconceivable that any one can seriously believe that the health and general welfare of children between fourteen and sixteen years of age can be improved by putting them back into the mills and shops for two hours longer each day. Even in the exceptional case where the strongest boy of fifteen may not be harmed by ten hours' work a day, he is probably better off with eight hours' work and some play, with the opportunity of putting some of his energy into study or industrial education.

Children under sixteen should not work more than eight hours a day. The bills which seek to repeal or modify the eight-hour law for children under sixteen should be defeated.

MEDICAL LEGISLATION. REGISTRATION OF VITAL STATISTICS.

THERE is at present pending before the Massachusetts General Court a bill providing that the registration of vital statistics in this Commonwealth be placed in charge of the State Board of Health. This work is at present done by local authorities in each community, often a city or town registrar. The State Board of Health must then coördinate this information for its own use, with resultant inaccuracy and duplication of labor.

"The present bill provides in the first place that the State Board shall have charge of the registration of births, marriages and deaths in the state, shall assume the administrative work necessary to do this, including the way in which it shall be done, shall designate the forms and blanks to be used, and have authority to enforce the law throughout the state in a thorough and uniform manner.

"It is proposed to create under the State Board a director to be named state registrar of vital statistics, and registration districts are provided, the same to be the different cities or towns. The act further provides a penalty for the registrar in any district who shall in the judgment of the State Board fail or neglect to discharge efficiently the duties of his office or

who shall fail to make promptly the required returns."

Massachusetts is one of the few registration states where vital statistics are not lodged primarily in the hands of the State Board of Health. It seems eminently desirable that this anachronism should now be corrected.

MEDICAL LEGISLATION. DISCLOSURE OF PROFESSIONAL INFORMATION.

THERE is at present pending before the Massachusetts General Court, and now under consideration by the Committee on Judiciary, a bill to prevent the disclosure of professional information by physicians and nurses on the witness-stand, "unless such information indicates that the patient has been the victim or subject of crime." This raises again the old question of the admissibility of privileged medical communication as testimony and of the sanctity of *sub sigillo* statements. In point of practise, expert evidence in court is largely concerned with matters of fact and opinion, and seldom involves the quotation of hearsay. The status of the medical expert is still far from satisfactory, but it does not appear that this bill would in any way amend it. It seems better that physicians, like other witnesses, should be required to answer all questions allowed by the court, and that the court should exercise discretionary jurisdiction as to what questions may be asked, and as to the proper application of the evidence.

MEDICAL NOTES.

POSTPONEMENT OF ACTION ON RADIUM CONSERVATION.—In the issue of the JOURNAL for Jan. 29 (p. 176) we commented editorially on the Foster Radium Conservation Bill, then pending before the United States House of Representatives. The Rules Committee of the House decided on Feb. 5 not to allow the House to take up this measure at the present session. A similar measure, however, the Thomas Radium Conservation Bill, is still under consideration by the Miners' Committee of the Senate.

LONDON DEATH-RATES IN DECEMBER, 1913.—Statistics recently published show that the total death-rate of London for December, 1913, was 14.9 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 19.7 in Shoreditch, a crowded east-side slum; and the lowest was 11.0 in Lewisham, an open southern suburb.

A LIVING BRITISH CENTENARIAN.—Miss Ritso, of Bath, England, is said to have been born on Jan. 26, 1812. Her parents were both centenarians.

BOSTON AND NEW ENGLAND.

TWO CENTENARIANS.—Mrs. John Y. Belyea, who died in Upton, Mass., on Feb. 15, is said to have been born on May 24, 1808, at St. Johns, N.B. She was married in 1833, but had been a widow since 1880. She migrated to the United States in 1891. She is survived by one aged daughter.

Mrs. Kate Montosky, who died at Collinsville, Conn., on Feb. 17, is said to have been born on Sept. 14, 1810, in Russia. Her health was exceptionally good until recently.

LAWRENCE GENERAL HOSPITAL.—The recently published thirty-eighth annual report of the Lawrence (Mass.) General Hospital and Children's Home records the work of those institutions for the year ended on Sept. 30, 1913. During this period a total of 3800 patients were treated in all departments of the hospital, including 165 obstetric cases. Eight nurses were graduated from the training-school.

HOSPITAL BEQUEST.—The will of the late Catharine E. Galvin, of Watertown, Mass., who died on Jan. 15, was filed on Feb. 16, in the probate court at East Cambridge, Mass. It contains a bequest of $2000 to the Carney Hospital, South Boston.

NEW YORK.

O'LOUGHLIN MEMORIAL.—A new emergency ward in St. Vincent's Hospital, designed as a memorial to Dr. Francis N. O'Loughlin, the senior ship surgeon of the White Star Line, who lost his life in the disaster to the Titanic, was dedicated to the use of disabled seamen on February 16. Dr. O'Loughlin was a constant visitor to St. Vincent's, in attendance on injured sailors, and at the exercises the principal address

was made by Dr. Edward C. Titus, for many years an associate of his.

RADIUM INSTITUTE OF AMERICA.—At a meeting of the Radium Institute of America, held at Columbia University on Feb. 17, papers were read by Prof. George B. Pegram, Prof. William Duane of Harvard, Francis C. Wood, director of cancer research, Columbia University, and others. The principal address was made by Dr. Robert Abbe of New York, who was among the first investigators to make practical use of radium, and in it he announced that he had just received a report from Dr. Alexis Carrel, who, at his request, had been making researches at the Rockefeller Institute, and that this report had convinced him that the manner in which he had been applying radium in the treatment of malignant and other growths was wrong. The experiments of Carrel had demonstrated that the gamma rays, which had been depended upon for stopping cellular growth, were almost entirely inert, while the beta rays, which had been considered of little or no value, were extremely active in this respect. "His (Carrel's) experiments," said Dr. Abbe, "are only just beginning. Where they will end I will not attempt to forecast, except to suggest that within five years from now we will know vastly more about radium than we know at this time. . . This new method of studying the isolated rays emitted by radium will end our period of confusion as to the qualities of each ray. I know that the action of each ray is different from the others, but more work under Dr. Carrel's cautious hands and on the part of others will be needed before we can assign to each division of the isolated rays its exact rôle."

INOCULATION FOR TUBERCULOSIS.—At a recent meeting of the City Board of Health a resolution was adopted denying the application of Dr. Hans Karfunkel for permission to inoculate living cultures of an unidentified bacillus in the treatment of tuberculosis. Some time ago Dr. Karfunkel, who is from Berlin, made the application referred to, and, in compliance with the rule of the board, he described in full the manner of using the vaccine and submitted a culture for examination. He stated that the culture was originally obtained from an abscess developed in a patient after inoculation with Piorkowski's vaccine, and subsequently the same living organism was said to have been found in other vaccines used for the treatment of tuberculosis. Examination at the Research Laboratory, however, showed that the organism was in no way related to the tubercle bacillus, but that it belonged, in fact, to the group of spore-bearing bacilli of which the hay bacillus is the main type.

DEATH-RATE FOR WEEK ENDING FEB. 14, 1914.—There were 1553 deaths and a death-rate of 13.88 per 1000 of the population reported during the past week, against 1732 deaths and a rate of 16.82 for the corresponding week of 1913, a decrease in the absolute number of deaths of 179, equivalent to a decrease in the relative number of deaths of 313—and a decrease of 2.94 points in the rate.

The following causes showed an increased mortality: Measles, scarlet fever, diphtheria and organic heart diseases; typhoid fever and cerebro-spinal meningitis were accredited with the same number of deaths as in the corresponding week of 1913. The following causes showed a decreased mortality: Whooping cough, influenza, bronchitis, lobar pneumonia, bronchopneumonia, pulmonary tuberculosis, other forms of tuberculous diseases, Bright's disease and nephritis, diseases of the nervous system and violence.

The number of deaths reported during the week of infants under one year of age was 226, which was 72 less than in 1913; the number of deaths of children under five years of age was 348, a decrease of 110 deaths; from five to sixty-five years there was a decrease of 54 deaths, and at sixty-five years and over a decrease of 15 deaths.

The death-rate for the first seven weeks of 1914 was 14.61 per 1000 of the population as against a rate of 14.98 for the corresponding period of last year.

THE USE OF COMMON CUPS, TOWELS, AND FORKS.—Attention having been called to the fact that the Board of Health regulations with respect to common drinking cups and roller towels, are not being observed as they should be, Commissioner Goldwater is taking steps to secure fuller compliance with the department regulations. Letters have been sent to those found violating the sections of the Sanitary Code with respect to drinking cups and roller towels, warning them that a continuance of the offense will render the offender liable to arrest and prosecution.

In this connection, it may be stated that the department is also contemplating action against the use of common forks at the saloon free lunch counters. Investigation has shown that forks, used by one person in eating from a common dish of some food, such as hash, potato salad, sauerkraut, etc., are returned after using, to a glass containing some cold water only, to be picked up and used in the same way by succeeding persons. This very personal tool thus comes into more or less intimate contact with the saliva of the mouth and the mucous membrane of the tongue and lips.

In view of the fact that disease-producing bacteria, some of them a most virulent kind, may be present in secretions of the mouth and throat, it is deemed important to prohibit this common use of such eating utensils. In an examination of the common bar-room fork, undertaken sometime ago in Louisville, disease germs were found in thirteen out of sixteen specimens examined. It is suggested that the food at such lunch counters be prepared beforehand in the form of sandwiches, etc., and handed out to the individual, or else each customer be given food on a plate with individual utensils and that these utensils be thoroughly washed after using.

SMALLPOX AT NIAGARA FALLS.—On Feb. 1, there were 130 cases of smallpox at Niagara Falls, N. Y. If the epidemic continues, it may become necessary to isolate the entire town.

SALE OF BICHLORIDE TABLETS.—In last week's issue of the JOURNAL we commented editorially on legislative regulation of the sale of bichloride of mercury tablets. On Feb. 17 a regulation was adopted by the New York board of health, providing that after March 1 bichloride of mercury tablets may be sold at retail only on prescription of a physician.

Current Literature

MEDICAL RECORD.

JANUARY 31, 1914.

1. THOMPSON, W. G. *Occupational Diseases.*
2. HEISER, V. G. *Beriberi. An Additional Experience at Culion. How Can a Knowledge as to Its Prevention Best be Applied from the Standpoint of State Medicine?*
3. NICHOLS, H. J. *The Relation of Experimental Syphilis to Eugenics.*
4. *WAGNER, J. *Report of Cases of Amebic Dysentery Treated with Emetine.*
5. SOLOMON, M. *Some Remarks on the Meaning of Dreams.*
6. GWYN, M. K. *The Healy Puzzle Picture and Defective Aliens.*
7. STEWART, D. H. *A Vegetable Hormone in Cases of Ileus and Gastric Dilatation.*
8. HUBBY, L. M. *The Treatment of Deafness with Sonorous Vibrations by the Zünd-Burguet Method.*
9. GREENWALD, M. *Clinical Observations of Auscultation at the Acromion Process.*

4. Wagner reports a small number of cases of amebic dysentery successfully treated with emetine hydrochloride. He finds the action of this drug specific in this disease. It should be given, he says, in gr. ½ doses hypodermically daily for seven days. The effect is immediate and pronounced, and no untoward symptoms are observed. As recurrence may occur, a repetition of the treatment is advisable. The administration of emetine is a useful test in the diagnosis of diarrhea of obscure origin; if the condition is relieved it is proved to be amebic dysentery. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 31, 1914.

1. MILLS, C. K. *Neurology at the Recent (Seventeenth) International Congress of Medicine.*
2. GWATHMEY, J. T. *Oil-Ether Anesthesia.*
3. NOVACK, H. J. *Large Gallstone Passed per Viam Naturalem.*
4. KNOX, H. A. *Mental Defectives.*
5. KENNEDY, J. W. *Foreign Bodies in the Appendix.*
6. HILLS, R. *The Modern Treatment of Chronic Nephritis.*
7. CUNNINGHAM, W. P. *Dermatoses Neuroticae.*
8. ROSENBLOOM, J. *On Testing Urine for Bile Pigments and for Diacetic Acid.*
9. VAUGHN, V. C. *The Etiology of the Infectious Diseases.*

SURGERY, GYNECOLOGY AND OBSTETRICS.

JANUARY, 1914.

1. *LAMBERT, A. V. S. *Treatment of Diffuse Dilatation of Esophagus by Operation.*
2. *CLARK, J. G., AND KEENE, F. E. *The Relation Between the Urinary System and Diseases of the Female Pelvic Organs.*
3. *BLOODGOOD, J. C. *Diagnosis and Treatment of Borderline Pathological Conditions.*
4. *LEONARD, V. N. *The Post-operative Results of Trachellorrhaphy in Comparison with Those of Amputation of the Cervix.*
5. *BOORSTEIN, S. W. *Syphilis of Bones and Joints, with Report of Ten Cases.*
6. *SULIG, M. G., AND TOBOLSKE, L. *The Inguinal Route Operation for Femoral Hernia; with a Supplementary Note on Cooper's Ligament.*
7. SHERMAN, H. M. *Congenital Dislocation of the Hip. A Rational Method of Treatment.*
8. KERR, N. *Tumor of Large Nerves Associated with Fibroma Mulluscum; with Exhibition of Largest Specimen on Record.*
9. FRINK, V. A. *Cysts of the Omentum; with Report of a Case.*
10. BENDIXEN, P. A., AND BLYTHING, J. D. *Pneumatic Rupture of the Bowel.*
11. STRAUSS, A. A. *An Artificial Ureter Made from the Abdominal Wall.*
12. GARDNER, J. A., AND SIMPSON, B. T. *The Relation of Multiple Adenomata to the Etiology of Enlargement of the Prostate Gland.*

1. Lambert suggests cardioplasty as the operation for the relief of diffuse dilatation of the esophagus. Cases resulting from cardiospasm can be permanently

cured this way. In these cases the esophagus is found to be lengthened as well as dilated. The operation is by the abdominal route, after a preliminary gastrostomy.

2. Clark and Keene show by excellent diagrams the close and important relationship between pelvic disease in the female and diseases of the urinary system. They urge routine cystoscopic examination in all cases presenting vesical symptoms.

3. Bloodgood's article is of the type which is of extreme importance to surgeons in educational work for the general practitioner.

4. Leonard believes that the presence of a marked endocervicitis should be considered as a contra-indication to trachellorrhaphy. Post-operative hemorrhage occurs in about 5 per cent. after amputation of the cervix, but very rarely after thachellorrhaphy, the improvement in symptoms after the latter operation being as great as that from the former. Trachellorrhaphy, unlike amputation of the cervix, is not a curative operation for endocervicitis. Fertility is much more likely to follow trachellorrhaphy than amputation of the cervix, which latter is more liable to be followed by abortion than the former, which has no effect on subsequent pregnancy. Labor after amputation may be very difficult, while normal after trachellorrhaphy. Trachellorrhaphy then is the operation of choice in women of child-bearing age.

5. Boorstein's article on syphilis of bones is well illustrated by case reports and plates.

6. Sulig and Tobolske advocate and plainly explain the inguinal route for cure of femoral hernia.

[E. H. R.]

THE QUARTERLY JOURNAL OF MEDICINE.

1. *WARRINGTON, W. B. *Intracranial Serous Effusions of Inflammatory Origin. Meningitis or Ependymitis Serosa—Meningism—with a Note on "Pseudo-tumors of the Brain."*
2. *ELLIOTT, T. R. *The Experimental Formation of Acute Gastric Ulcers.*
3. *GASKELL, WALLIS, SLADDEN, VAILE AND GARROD. *A Contribution to the Study of Bronzed Diabetes.*
4. *GIBSON, A. G. *On the Infective Nature of Certain Cases of Splenomegaly and Banti's Disease.*
5. *COWAN, HARRINGTON, AND RIDDELL. *On Pneumopericardium.*
6. GOETSCH, E. *Critical Review: The Pituitary Body.*

1. Warrington discusses in a thorough and interesting manner the pathology and symptomatology of serous effusions within the skull, illustrating his remarks with case reports. These effusions may be acute or chronic. The acute cases, the serous meningitis of Quincke, are most often secondary to a septic focus, usually in the ear. The division between "meningism" and meningitis serosa, on the one hand, and between the latter and purulent meningitis, on the other, is not sharp and distinct, but gradual. The examination of the spinal fluid furnishes the most important distinction. In meningism it is normal, except for increased pressure, which is usually present. (The pressure is often normal.—W. T.) In meningitis serosa the fluid shows inflammatory signs, such as increased protein, increased cell counts, but micro-organisms are usually absent and the fluid is clear. In the chronic cases the symptoms and signs are those of increased intracranial tension, due to an acquired internal hydrocephalus. In these patients the erroneous diagnosis of tumor of the brain is often made, and indeed the differential diagnosis is very difficult. They frequently recover after a decompression, usually with some permanent impairment of vision.

2. Elliott has discovered that acute ulcers of the stomach may be produced in guinea-pigs with great regularity by subcutaneous injection of the substance tetrahydro-B-naphthylamine hydrochloride. The first change appeared in one hour after the injection, and consisted of necrosis of the surface epithelium, often accompanied by small hemorrhages into the mucous membrane. Within 24 hours the ulcers are fully developed, extending down to the muscularis mucosae. They healed with great rapidity unless they became infected. Guinea-pigs that were deprived of food before and after the injection, did not develop ulcers. Chronic ulcers could not be caused by this method. The writer concludes that the ulceration is due to the action of the gastric juice on the damaged mucous membrane. Acute gastric ulcers in man are probably often caused in a similar way by the combined action of the gastric juice and toxic substances.

3. This article contains a careful study of the urine, feces and blood, and the autopsy findings in a typical case of hemochromatosis, a condition in which cirrhosis of the liver and pancreas is accompanied by the deposition of pigment in the skin and internal organs, and in the later stages by diabetes. The most important facts brought out were with reference to the iron metabolism. The blood was found to contain an excess of iron, while the feces and urine contained no iron. In the kidney the interesting discovery was made that the convoluted tubules of the first order contained no iron, while those of the second order and the glomeruli showed large amounts. This suggests that the iron is excreted by the glomeruli, but is taken up again by the tubules of the second order. The hypothesis is advanced that the pigment is derived from nucleo proteins and not from hemoglobin.

4. Gibson describes structures found by him in sections of spleens in cases of splenomegaly, which he regards as parasites of the streptothrix family. He claims that these bodies are the cause of the splenomegaly, although he has observed them only in sections and has not cultivated them. The cases in which he found them included Banti's disease, chronic passive congestion and syphilis.

5. The writers publish a very interesting series of radiographs of a case of pneumopericardium uncomplicated by effusion. The cardiac dullness was not obliterated and the diagnosis was made possible only by x-ray examination. [W. T.]

THE PRACTITIONER.

JANUARY, 1914.

1. BENNETT, W. H. *Some Clinical Experiences in Deceptive Symptoms.*
2. JONES, D. W. C. *Gait in Nervous Disease.*
3. *GRAY, H. T. *Stomach-aches Associated with General Infections in Childhood.*
4. *PRITCHARD, E. *Some Physiological Principles Concerned in the Nutrition of Infants.*
5. HARTLEY, J. *Acute Intestinal Obstruction as It Concerns the General Practitioner.*
6. COCKAYNE, E. A. *Jaundice.*
7. *THOMSON, H. H. *The Diazo- and Russo-Reactions in Pulmonary Tuberculosis.*
8. OLIVER, G. *Practical Points in Sphygmomanometry.*
9. WATSON, A. *Some Observations on the Effect of Hypodermic Injections of Adrenalin on the Blood-Pressure.*
10. MENNELL, J. B. *Massage as a Therapeutic Agent in the Treatment of Neurasthenia.*
11. OLIVER, J. *Painful Menstruation.*
12. SAVILL, A. F. *Some of the Uses of Electricity in Medicine.*
13. GAUNTLETT, E. G. *Recent Work in Surgery.*
14. PIKE, J. B. *Encapsulation as a Factor in Pathology.*
15. JOHNSON, R. *Kharga Oasis as a Health Resort.*

3. Gray believes that stomach-aches in childhood can be explained by interference with the normal passage of food through the intestine. Such interference may take place in three ways through abnormal conditions:—

1. In the lumen of the intestines.
2. In the intestinal wall.
3. In the mesentery.

Under the first heading he discusses cases of abdominal pain associated with diarrhea; under the second, those rarer cases associated with purpura, in which the chief and often only symptom is pain. Such pain may occur in tonsillitis, diphtheria and other conditions. Under the third heading he considers acute inflammatory conditions, such as appendicitis.

4. Pritchard, in a thoughtful article, considers in detail the physiology and chemistry of digestion and metabolism of infants. The paper is interesting, but not suited for review.

7. Thomson, basing his investigations on 500 cases of pulmonary tuberculosis, concludes in regard to the diazo- and Russo-reactions that (*a*) a persistent diazo-reaction or a combined diazo- and Russo-reaction in pulmonary tuberculosis of recent onset is a sign of serious significance; (*b*) the disappearance of the diazo-reaction is usually associated with general improvement; (*c*) a positive diazo-reaction with negative Russo- is less serious than the combined reactions; (*d*) these reactions mean severe systemic intoxication and contra-indicate the use of tuberculin.

The Russo-reaction consists in adding 2-3 drops of a 1-1000 methylin blue solution to a small quantity of urine in a test-tube. When positive, the solution changes from peacock blue to an emerald green color.

[J. B. H.]

EDINBURGH MEDICAL JOURNAL.

JANUARY, 1914.

1. *KER, C. B. *Isolation and Quarantine Periods in the More Common Infectious Diseases.*
2. *MCNEIL, C. *The Association of Acutely Fatal Illness in Infants and Children with Abnormal Constitutions (Status Lymphaticus).*
3. BRUCE, A. N. *Spinal Changes in Pseudo-Hypertrophic Paralysis.*
4. DUNDAS, W. C. *What is Genuine Milk?*
5. OLIVER, J. *Fertilization Time and the Inception of Gestation in Women.*
6. STRUTHERS, J. W. *Spontaneous Recovery after Perforation of Duodenal Ulcer.*
7. WILKIE, D. P. D. *Case of Osteochondritis Deformans Juvenilis.*

1. This article is full of practical information concerning the acute infectious diseases, their periods of incubation, isolation and quarantine. It presents nothing especially new, however.

2. McNeil discusses from various points of view the subject of status lymphaticus. He divides these cases into three groups: (1) Infants found dead in bed overnight, (2) older children or young adults succumbing during anesthesia, (3) young adults dying suddenly during bathing. He reviews the historical features of this strange condition and then takes up the age incidence, sex incidence, general appearance of the body in these cases and morbid anatomy. This latter he discusses in detail, with special reference to these lymph glands and tissues, suprarenals, thyroid, pituitary, and others. He presents the details of the findings in 13 cases of sudden deaths in infants. The article is carefully summarized, is provided with excellent plates and an elaborate bibliography. [J. B. H.]

THE INDIAN MEDICAL GAZETTE.

JANUARY, 1914.

1. CRAWFORD, D. G. *Surgeon-General James Ellis.*
2. *KENNEDY, R. *Note on Ambulance Transport in Very Difficult Mountainous Country.*
3. MAYNARD, F. P. *A Useful Modification in Extirpation of the Lachrymal Sac.*
4. RIELEY, S. D., AND HOWLETT, F. M. *A Few Observations on Myiasis (Screw-Worm Disease) in Behar.*
5. MILTON, F. *Does Bilharzia (Schistosomiasis) Exist in India?*
6. HOOTON, A. *The Treatment of Simple Fractures, Dislocations and Sprains by Massage and Early Movement.*
7. CHATTERJI, K. K. *A Clinical Lecture on Phylacogen.*
8. HODGE, E. H. V. *Notes on Some Cases.*
9. GOOD, J. *Guttate or Nodular Keratitis.*

2. Kennedy's article is illustrated by six excellent photographic plates representing ingenious methods of transporting the wounded in rough or mountainous country. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 2. JANUARY 13, 1914.

1. *FRAENKEL, E. *Skin Lesions in Typhus and Typhoid Fevers.*
2. LEBER, A. AND V. PROWAZEK, S. *A Journey in the South Sea Islands and Dutch Indies.*
3. REICHEL, H. *X-ray Findings and Operation in Carcinoma of the Pylorus.*
4. MAYER, A. *Abderhalden's Dialysis Method. Luetic Indexæ and Its Application.*
6. LESSER, F. *The Quantitative Wassermann Reaction in the Treatment of Syphilis.*
7. KLAUSNER, E. *The Palladin Reaction.*
8. BRONSTEIN, J. *The Technic of Sero-diagnosis.*
9. KIENBÖCK, R. *The Dosage of X-rays.*
10. DÖLGER, R. *A New Suction Ear Syringe.*
11. WEBER, A. *The Registration of the Auricular Pulse from the Esophagus.*
12. *OELLER, H., AND STEPHAN, R. *Clinical Studies with Abderhalden's Dialysis Method. (Conclusion.)*
13. SUDHOFF. *Julius Preuss.*

1. To gross appearances the skin lesions of typhus and typhoid fevers are very similar. Fraenkel has been able to excise the skin in two cases of typhus fever, to fix it immediately and to study the histological changes in the fresh tissue. In typhoid fever, there occurs a true lesion of the skin with collections of organisms and cells, leading to a pressure necrosis. In typhus fever, on the other hand, the small arteries of the skin are affected, with infiltration around them leading to peri-vascular nodules which result in characteristic gross appearances. Fraenkel believes that this lesion is peculiar to typhus, and serves as a means for making a differential diagnosis between the two diseases.

12. Oeller and Stephan give a thorough review of the literature which has accumulated on Abderhalden's dialysis method. The test has been applied in gynecology, psychiatry and internal medicine as a means for diagnosis. In the majority of pregnancy cases, placental tissue is split by a protective ferment in the blood. But the same reaction is obtained in a relatively large percentage of non-pregnant cases. In psychiatry, and in internal medicine, especially in diseases of internal secretion and tuberculosis, several observers have reported brilliant results from the test. Critical studies, however, show that the results obtained have not been specific for any one organ or for any definite type of disease, and therefore Oeller and Stephan feel that the method is not of any special value.

The difficulty with the observations recorded is their lack of proper control. Oeller and Stephan report experiments to prove this, and show how better controls should be made. They conclude that Abderhalden's method cannot be applied for general clinical use until the theory of protective ferments is established more soundly. [R. F.]

No. 3. JANUARY 20, 1914.

1. HENKEL, M. *Ray Treatment in Gynecology.*
2. KLEIN, G. *Preliminary Remarks on the Treatment of Carcinoma by the Combined Use of Mesothorium, X-rays, and Intravenous Injections.*
3. REHN, E. *The Cutaneous and Subcutaneous Connective Tissue as Plastic Material.*
4. *LUST, F., AND ROSENBERG, F. *The Etiology of Infantile Paralysis.*
5. FAUSER, A. *Serology in Psychiatry.*
6. WEINBRENNER. *Carcinoma of the Skin Cured by Salicylic Acid.*
7. BECK. *The Stability of Skopolamin Solutions.*
8. *DIETLIN, M. *A Case of Unilateral Gigantism.*
9. MAYER, O. *Formaldehyde Spray as a Means of Disinfection with and without Diminished Air Pressure.*
10. GRAUMANN, M. *The Early Diagnosis of Measles.*
11. STREBEL, H. *Other Cathodal Rays as Substitutes for Radium and Mesothorium.*
12. MÜLLER, C. *The Physical and Biological Basis for the Use of Radio-active Substances and Their Substitution by Roentgen Rays.*
13. GROTH, A. *Vaccination in Bavaria During* 1912.
14. REICHEL, H. *X-ray Findings and Operation in Carcinoma of the Pylorus. (Conclusion.)*

4. During 1913, seventy-one cases of infantile paralysis were seen in the Heildelberg clinic. Recent advances in the study of the disease have determined its etiology. One of the theories in regard to its transmission has been that the virus is carried by fowls on account of a disease in these animals which clinically is not unlike poliomyelitis. Lust and Rosenberg conducted experiments to determine whether fowl paralysis showed histological findings which resembled those of infantile paralysis, and whether fowls could be inoculated with the virus.

From their results Lust and Rosenberg concluded that hens were neither artificially or naturally prone to the disease, and that while hen paralysis may be caused by a filterable virus related to that of poliomyelitis, the diseases are not absolutely alike.

8. It is recognized that a certain degree of asymmetry is normal in individuals. Rarely hemihypertrophy or unilateral gigantism occurs when one side of the body develops to a much greater extent than the other. Dietlein reports such a case. There are various theories as to the cause of the overgrowth, certain authors believing that it is due to connective tissue hyperplasia, muscular hyperplasia, or nervous disturbances. None of these factors appeared to play a part in Dietlein's case. He believes that the condition was possibly due to a congenital hemi-elephantiasis caused by abnormal development of the veins on one side of the body. As proof of this was the fact that all the veins of the affected side were larger than on the other side. [R. F.]

Obituary.

ROSWELL PARK, M.D.

DR. ROSWELL PARK, who died on Feb. 15, at Buffalo, N. Y., was born on May 4, 1852, in Pomfret, Conn. He received the degree of A.B. from Racine (Wis.) College in 1872, and that of M.D. in 1876 from Northwestern University. From 1877 to 79 he was demonstrator of anatomy at the Women's Medical College, Chicago, and adjunct professor of anatomy at Northwestern University from 1879 to 82. In the latter year he became lecturer on surgery at the Rush Medical College, Chicago, and in 1883 surgeon to the Buffalo (N. Y.) General Hospital and professor of surgery at the University of Buffalo. In 1891 he published "Lectures on Surgical Pathology." In 1892 he received on honorary degree of M.D. from Lake Forest University, and in 1895 an honorary A.M. from Harvard. In 1896 he published his "Text-Book of Surgery," in two volumes, and in 1897 his "History of Medicine." In 1902 he received an honorary degree of LL.D. from Yale, and in 1907 published "The Principles and Practice of Modern Surgery." He was a former president of the American Surgical Association and of the Medical Society of the State of New York. He is survived by his widow.

Correspondence.

PAIN FROM FRONTAL SINUS DISEASE.

BOSTON, Feb. 20, 1914.

Mr. Editor: In the number of the BOSTON MEDICAL AND SURGICAL JOURNAL for Feb. 19th, 1914, page 283, there is a statement which seems to me to be incorrect. According to my experience, pain from frontal sinus disease begins in the morning and usually disappears or diminishes in the afternoon. Your editorial says that the headache comes on regularly in the afternoon or toward evening, which is certainly contrary to what is taught in all text books dealing with diseases of the nose.

Yours truly,

JOHN W. FARLOW, M. D.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE TWO WEEKS ENDING FEBRUARY 14, 1914.

January 21, Surgeon J. A. Murphy ordered to the *Michigan.*

February 2, P. A. Surgeon J. B. Mears, detached: *Cincinnati* to home.

P. A. Surgeon C. E. Strite, detached: *Michigan* to home.

February 3, Surgeon R. R. Richardson, to Naval Training Station, Great Lakes, Ill.

P. A. Surgeon F. H. Brooks, to Navy Yard, Norfolk, Va.

Asst. Surgeon J. J. O'Malley, to Naval Hospital, Norfolk, Va.

Surgeon H. E. Odell, to Naval Hospital, Canacao, P. I.

February 4, P. A. Surgeon E. O. J. Eytinge, detached: Naval Hospital, Mare Island, Cal., to treatment at that Hospital.

February 5, Surgeon C. N. Fiske, to Navy Yard, Mare Island, Cal.

P. A. Surgeon C. B. Munger, to Receiving Ship, Puget Sound, Washington.

P. A. Surgeon W. S. Hoon, detached: Mare Island Yard, to *Pittsburg.*

P. A. Surgeon W. H. Short, detached: Naval Station, Guantanamo, Cuba, to temporary duty Receiving Ship, Mare Island, Cal.

P. A. Surgeon F. W. P. Hough, detached: Insular Government, P. I., to *Cincinnati.*

P. A. Surgeon E. C. White, detached: Naval Hospital, Canacao, P. I., to home and wait orders.

February 7, Commissioned from:

Surgeon W. S. Hoon, from November 14, 1913.
P. A. Surgeon A. B. Davidson, from March 28, 1913.
P. A. Surgeon J. J. O'Malley, from October 8, 1913.
P. A. Surgeon R. F. Sheehan, from October 5, 1913.
P. A. Surgeon W. H. Halsey, from October 1, 1913.
P. A. Surgeon W. J. Riddick, from March 28, 1913.
P. A. Surgeon D. C. Walton, from March 28, 1913.
Asst. Surgeon W. W. Wickersham, from January 14, 1914.

February 12, Surgeon R. E. Hoyt, detached: *Michigan;* to sick leave.

P. A. Surgeon Heber Butts, detached: *Elcano* to *Wilmington.*

P. A. Surgeon Martin Donelson, detached: *Wilmington* to Naval Station, Iloagapo, P. I.

Asst. Surgeon R. C. Davis, detached: Naval Hospital, Canacao, P. I., to *Elcano.*

February 6, Medical Director C. F. Stokes, detached chief of Medicine and Surgery; to temporary duty in connection with that bureau.

Surgeon F. E. McCullough, to temporary assistant to Bureau of Medicine and Surgery.

Surgeon T. W. Richards, detached: Bureau of Medicine and Surgery, to fleet surgeon, Atlantic Reserve Fleet.

UNITED STATES PUBLIC HEALTH SERVICE.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

A board of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S.E., Washington, D. C., on Monday, March 9, 1914, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service. Examinations will be scheduled to be held at other stations of the Service at a later date.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character, one preferably being from a Doctor of Medicine.

For invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

NOTICES.

MASSACHUSETTS GENERAL HOSPITAL.—A surgical meeting open to the medical profession will be held at 8.15 p. m., Friday, Feb. 27, 1914, in the lower amphitheatre of the Out-Patient Department. Entrance on either Blossom or Fruit Streets.

Dr. Channing C. Simmons will present "Treatment of Osteomyelitis."

Dr. Beth Vincent will present "Choice of Methods of Technic in Transfusion of Blood."

THE HARVEY SOCIETY. — The ninth lecture will be delivered on Saturday, February 28th, at 8.30 p. m., at the New York Academy of Medicine, 17 West 43d street, by Prof. Richard P. Strong, Harvard University.

Subject: "The Etiology of Oroya Fever and Verruga Peruviana."

THIRD INTERNATIONAL CONGRESS ON OCCUPATION DISEASES.—The undersigned committee has been organized for the purpose of inviting the attention of the Medical Profession and all others interested in the prevention of Occupational Diseases to the Third International Congress on Diseases of Occupation to be held in Vienna in September, 1914.

Among the topics which will be considered at the coming Congress are:

1. The physiology and pathology of fatigue, with special reference to vocational work and to the effects of night work on the nervous system.
2. Work in hot and damp air.
3. Occupational Anthrax
4. Pneumononiosis.
5. Injuries caused by electricity.
6. Industrial poisons.
7. Injuries of hearing caused by industrial pursuits.
8. Miscellaneous communications.

SOCIETY NOTICES.

BOSTON SOCIETY OF MEDICAL SCIENCES.—The Boston Society of Medical Sciences announces a meeting of the Harvard Medical School Historical Society (Wm. J. Kerr, Secretary), on Tuesday evening, March 3, 1914, in the amphitheatre of the Peter Bent Brigham Hospital, at 8.15 o'clock. Program:

Dr. Fitz: "Caleb Hillier Tarry on Exophthalmic Goitre."

Dr. Walton: "Medical Saints in Art" (illustrated).

Dr. W. S. Thayer: "Notes on Cotton Mather."

THOMAS ORDWAY, *Secretary and Treasurer,*
Harvard Medical School.

APPOINTMENTS.

The following appointments to the Medical Staff of the Boston Dispensary have been made: Dr. John H. Bufford, Physician in the Dermatological Department; Dr. W. G. Funnell, Assistant Surgeon in the Eye Department; Dr. J. H. Blaisdell and Dr. Harold W. Dana, Assistant Physicians in the Dermatological Department; Dr. Leroy A. Luce, Physician in the Electrical Department; Dr. W. L. Quennell, Dr. Edward Martin, and Dr. Samuel G. Paolo, Assistants to the Physicians in the Children's Medical Department.

RECENT DEATHS.

DR. HORACE EUGENE MARION, a Fellow of The Massachusetts Medical Society, formerly chairman of its Committee on Medical Diplomas, Medical Director of the 2d Brigade, M. V. M., died in his automobile of heart disease at Boston, February 8, 1914, aged 70 years. He was a native of Burlington, Vt., and a graduate of Dartmouth College with the degree of B.S. in 1866 and M.D. in 1869. He had lived and practised in Brighton since 1870. He was a member of the Obstetrical Society of Boston and was much interested in Masonic and G. A. R. affairs.

DR. ALBERT H. TOMPKINS, who died recently in Jamaica Plain, was born at Little Compton, R. I., in 1844. He received the degree of M.D., in 1875 from the Boston University Medical School. He was a member of the American Institute of Homeopathy and of the Massachusetts and Boston Homeopathic Medical Societies. He is survived by his widow and by one son.

DR. CLAUDIUS L. HOYT, who died of nephritis recently in Manchester, Mass., was born at that town in 1851, and had practised dentistry there for many years.

DR. STANLEY HOWARD MACGILLVARY, of Brooklyn, N. Y., died on February 16 at St. Mary's Hospital, after an operation for appendicitis. He was a native of Sydney, Cape Breton Island, and 45 years of age, and was graduated from Bellevue Hospital Medical College, New York, in 1890.

DR. WILLIAM KELLY SIMPSON of New York, professor of laryngology in the medical department of Columbia University, died from cerebral apoplexy on February 6. He was born in Hudson, N. Y., on April 18, 1855, and was graduated from Cornell University in 1876 and from the College of Physicians and Surgeons, New York, in 1880. He served as interne at the Presbyterian Hospital, and after engaging in private practice became well known as a specialist in diseases of the throat, ear and nose. At the time of his death Dr. Simpson, in addition to his professorship at Columbia, held the positions of laryngologist to the Vanderbilt Clinic, consulting otologist to the Presbyterian Hospital, and consulting laryngologist to Seton Hospital, the New York Foundling Hospital, St. John's Riverside Hospital, Yonkers, and Somerset Hospital, Somerville, N. J.

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Address.

RELATION OF THE GENERAL HOSPITAL TO THE TRAINING SCHOOL FOR NURSES.*

BY HENRY M. HURD, M.D., BALTIMORE.

THE history of the training school movement in the United States is most instructive. Among the first schools in this country were those at Bellevue Hospital, at the Massachusetts General Hospital, at the New Haven Hospital, at the Philadelphia Hospital and later at the Illinois Training School. All were separate organizations endowed and organized by philanthropic women which had contractual relations with their respective hospitals, but were in no sense a part of the hospital. They were under contract to furnish a certain number of nurses to do the nursing work of specified wards, but the hospital itself felt no responsibility for the management of the school and in fact any effort on the part of the hospital to control the school was evidently resented by those who had charge of it. This was largely due to the fact that the organization of schools in this country to educate and train nurses, especially women nurses, had been regarded a dangerous experiment by conservative members of the medical profession. Training schools had a standing very much like that of the "votes-for-women movement" just now. They were still in the marching stage. They had their faces set towards the promised land but had not arrived. For this reason the ladies who were interested in the organization and devedopment of training schools were compelled to organize them without assistance from hospital authorities, as separate and distinct institutions. This was unfortunate, because it engendered a spirit of mutual criticism which continued for a long time between hospital officers and those who were managing training schools. Hospital officers and physicians under the circumstances were quick to criticise the management of the schools and to exaggerate deficiencies and short-comings even when they did not altogether condemn the whole scheme as impracticable. On the other hand boards in charge of training schools were equally inclined to criticise hospitals and to assert that if the management of them could be committed to the training schools, the care of the sick would thereby be much facilitated, and all administrative difficulties would disappear. We hear such statements from excellent women even at this day. I do not complain of the spirit of antagonism between training schools and hospitals —it was inevitable—and I only mention it to show why after a time it became absolutely essential that the school and the hospital should be more closely related. The jealousies, antagonisms and needless criticisms which hampered the work of both hospital and training school finally led a wise and far-seeing medical man, Dr. Edward Cowles, then superintendent of the Boston City Hospital, to organize a training school in that Hospital, under its control and not under a separate board of lady managers. The advantages of such identity between the school and the Hospital proved so great that it has become the ordinary relation between hospitals and training schools; the training school being now considered an indispensable and integral part of every hospital.

Of the early training schools which I mentioned in the beginning of this address, but one remains in a state of single blessedness. The rest have been wooed and won by hospitals. The Illinois Training School connected for a quarter of a century or more with hospitals in the city of Chicago, has been under the control of a wise and liberal board of lady managers from its organization, and has maintained its autonomy. I prediet, however, that the time will come when its management will see the importance of a closer relation than that of friendship with a good hospital to secure greater opportunities for the school and greater efficiency in its work.

It is not strange that the mutual advantages of a union between the training school and the hospital have been apparent in every city where it has been tried. An organic relation has brought about a good understanding between the management of the hospital and the superintendent of the training school so that the latter has been responsible for the selection of nurses and the hospital has appointed them. It has afforded better opportunities for training because the work has been carried on through the mutual efforts of the superintendent of the hospital and the superintendent of the training school. Pupil nurses have not found themselves in the hospital as a matter of privilege exposed to the criticism of unfriendly medical men but have become a part of the hospital machinery. Consequently the nurse has a better standing and larger opportunity to secure a thorough efficient training. This better relation between the two has also brought a recognition of the duty of the hospital to train its nurses and thus to contribute materially to the welfare of the community and to the health of the whole city.

In the vast majority of general hospitals, therefore, and in such other hospitals as are not under the control of religious orders the training school for nurses has become an integral part of the hospital and receives the same recognition as any other portion of the hospital. In fact in many hospitals it is conceded that the mission of the hospital is not only to take care of the sick, and to promote the training of medical men in its wards as internes, but also to

* Read at the graduating exercises of the Massachusetts General Hospital Training School for Nurses, January 15, 1914.

foster the training of young women as nurses. For the future there seems no reason why the training school and hospital authorities everywhere through the country should not walk hand in hand in an effort to promote the better training of nurses and better care of patients.

While I would not seek to minimize the great advantage to the training school and to the hospital of this mutual relation, candor compels me to acknowledge that the union of the two has not at all times and in all places been an unalloyed benefit, and it is not now. I cannot disregard the patent fact that many small hospitals and special hospitals have taken advantage of this relation to exploit the training school for the benefit of the hospital. Such exploitation has generally occurred because of the discovery that a training school for nurses was a valuable asset to a hospital. It not only advertised the hospital as better than one which did not possess a training school, but also enabled the proprietor of the small special hospital often times to procure a nursing service at a cheaper rate than would be possible in any other manner. This has led to the organization of training schools in many hospitals where a training school ought not under any circumstances to exist. Take a single example, and there are many such, of a small hospital interested solely in the surgical diseases of women, owned and operated as a private enterprise. Such a hospital in the interest of nursing has no right to organize a training school. After a period of special service the nurses graduate and become so-called trained nurses in the community to encounter active and acute diseases with which they have had no experience and to cope with the emergencies which may arise in the treatment of such cases. This has been done I am sorry to say in too many instances with the effect to lower the standard of nursing and has led to an imperfect fulfilment of the duty which the hospital owes to the pupil nurse in a variety of ways. It is unjust to the nurse and a fraud upon the public. Practical nursing has not been well taught because the special hospital has not had material enough to permit the nurse to receive instruction in the various branches of nursing.

It soon became apparent to those who were thus conducting special hospital training schools that the best women did not care to come to them for training, because they were not eligible to registration under the laws of states in which the duty of the public toward well-educated nurses had been scrupulously considered. It consequently became necessary for special hospitals, in order to carry out their original plan to train pupil nurses, to accept persons for training whose educational qualifications fell below the proper standard. The result has been the graduation of many persons not fitted by education or training to assume the duties which naturally devolve upon a trained nurse. In many instances nurses not old enough to commence training, who had not received sufficient education prior to entering upon the study of nursing, after an inferior course of study were sent out to serve the community with imperfect ideals as to nursing and an inadequate training in its different branches. This has discouraged applications on the part of capable women who in the better schools must spend three years of their time to secure training in a good hospital in addition to several years already spent in procuring a preliminary education. These women, superior women, I think we can call them without flattery, are unwilling to spend time and effort in the arduous labors of a training school of the higher grade to find themselves as graduate nurses in unfair competition with imperfectly educated women, with aims and ideals far below those of a well educated nurse. This is the reason why we hear complaints that hospitals find it difficult to procure pupil nurses for their training schools. I have already alluded to the attempt which has been made in some quarters to meet the difficulty by lowering the standard of educational requirements for nurses. It has even gone beyond this. Not only has the educational standard been lowered but the age and health of those selected for training have often not been considered, until finally there is danger that the educated nurse will not be fit either physically or by age as well as by education to assume her difficult and trying duties. Many persons seem to forget, or at least to lose sight of the fact that the training school for nurses is a school, that pupil nurses should be treated in all respects as students in other schools and admitted to courses of training only when they are fitted to enter upon the study of nursing. The training school is an educational institution connected with a hospital, precisely as a medical school is a school similarly connected with a hospital, and neither of them can be treated as an economic device to secure cheaper nurses and cheaper medical men. A moral compulsion consequently ought to be exercised on all hospitals both from without and within to establish and maintain good training schools with proper educational standards in the interest of better nursing, rather than in the interest of economy to the hospital. The best hospitals do not always take perfect care of their patients, nor do the best training schools always turn out perfect nurses. They do the best they can with the best persons attainable. Hospitals for their own good and that of the state and the public cannot afford to foster the production of inferior nurses simply because they are more easily procured and less costly to train. Such schools are not cheap in the long run, nor do they permanently benefit the hospital, because they ultimately prevent the best women from entering the profession of nursing.

An entrance requirement therefore would seem essential for every pupil nurse. The hospital has a right and duty to fix an educational entrance requirement as much as a health requirement, and in its turn should give a good,

thorough honest course of instruction. To attempt to get something for nothing is an economic error which sooner or later will destroy all ideals of nursing and lower the standards of all training schools. The interests of the hospital and of the school are identical. Every pupil nurse has a right to a first-class training, and every hospital has an equal right to expect that women of education and refinement will apply for appointments as pupil nurses and will avail themselves of the opportunities afforded by a proper training school. I am persuaded in fact that every training school which has a good preliminary educational requirement and gives pupil nurses reasonable hours of labor with due recognition of the severity of the work, and a thorough and sensible course of instruction will not lack for pupil nurses. I repeat that they will not lack for nurses if proper attention is paid to the health, welfare and education of pupil nurses, because it is evident to all who have anything to do with training schools that educated women of the right stamp are as anxious to enter the profession as ever. Many have been deterred from doing so by the fact that the well educated nurse after years of study and training, found herself obliged to compete with nurses who had not received similar advantages. She had no protection from half-educated or unscrupulous competitors.

After much thought, I have come to the conclusion that every hospital should educate two classes of attendants upon the sick, one to be known as trained nurses and the other as trained attendants. The trained nurse should be guaranteed her proper position as a nurse under a state registration and the right to maintain her privileges by an appeal to the courts if need be. The semi-trained nurse should be called an attendant upon the sick, her duties, privileges and right should equally be fixed by law. In the U. S. Army medical corps the surgeon is never confounded with the hospital steward, nor do we find the hospital steward arrogating to himself the duties and responsibilities of the army surgeon. Similarly in the world at large as at the hospital, the trained nurse should occupy a higher position and be in no danger of competition from the untrained woman. The key to the whole situation is an adequate registration law for nurses.

The laws of every state should recognize the legal status of the nurse earned by virtue of the hard work which she has done and should protect her in her rights. This is not trade unionism as some people claim, but simple justice and it is the duty of hospital men to make every effort to supply this protection to nurses who have come to us in good faith and who have done their duty thoroughly and conscientiously for three years. Hospitals or individuals should not allow considerations of economy to impair faithful work.

When in an adjoining state the superintendents of prominent hospitals in a communication to the State Department of Education expressed the conviction that it was essential to lower the standard of educational requirements for nurses in order to educate nurses for the service of the public, one cannot help feeling that they acted hastily and without fully appreciating the consequences of their act.

The lack of nurses complained of by these gentlemen was more the lack of pupil nurses in the hospitals than of trained nurses in the community at large. There is in fact little scarcity of trained nurses in any community. There may be a scarcity of good nurses simply because the profession of nursing has been flooded with nurses of insufficient education, who had been accepted for training on similar pleas or turned out from correspondence schools. If those who are thus charitably interested in supplying nurses to the public will call to mind the large numbers of nurses ready in every city to serve the public but finding difficulty in getting cases, they must confess that the lack of nurses of which they complain cannot be a crying evil. Nurses ought to be protected in the rights which they have earned for themselves precisely as physicians and lawyers are protected. Physicians cannot practice unless they have had a certain degree of education and can fulfill certain professional and educational requirements. A lawyer is not admitted to the bar until he can show that he has spent a specified time in the study of his profession and has done a prescribed amount of work. In Maryland undertakers and barbers even are required to be examined and licensed. Similar care should be taken to supply to the trained nurse the protection of the law. To this I may add a statement which has doubtless occurred many times to all of you. The welfare of both hospital and nursing profession alike is irrevocably bound together. The hospital cannot do its work thoroughly and meet the requirements of the modern hospital treatment of the sick without the help of the trained nurse. Trained nurses on the other hand cannot receive their proper instruction except in a general hospital and in a training school managed and controlled by the hospital authorities.

The time is past, far past I hope, when any one can propose that the training school should be divorced from the hospital and placed as formerly under the control of a separate organization. I go farther than this, in fact, because I believe in order that nurses may enter upon the higher education which now seems to be required by every nurse, to fit her for calls to better and larger service, it is essential that higher schools of instruction also be connected organically with hospitals. The good work of Teachers College in New York needs to be supplemented by a closer connection with a hospital. The incentive to education which comes with the grouping together of large bodies of young women in the training school and in the hospital wards must not be overlooked. Trained nurses have

done much for hospitals and hospitals in turn have done much for nurses. It is impossible for any one to "assess" the mutual benefits, to use a legal phrase.

I now come to the most pleasing duty of my address (I do not allude to giving advice) and I feel it not so much a duty as a pleasure to welcome you as nurses to the great band of nurses who have gone before you. The leaders of this band who obtained their education twenty-five or thirty years ago, were few in number but mighty in faith and the onward march of those who have followed them in constantly increasing numbers has justified the correctness of their vision. Numbered at first by tens and by scores, they now see their successors numbered by thousands.

I congratulate you upon the completion of your chosen work. You have labored long and zealously and have attained the honor for which you have striven. A diploma is not much in itself, a mere piece of parchment with some stately unfamiliar words written or printed upon it. It is related that Thoreau the naturalist once in writing of the diploma which he had received from Harvard University, uttered the bitter gibe "In future let every sheep keep his own skin; I wish none of it," and so he might if the sheepshin or parchment constituted the whole of the diploma. It is not the parchment itself, after all which you prize but it is what it signifies. Ingersoll once said that a bill of fare is not a dinner. True enough, but it may be the *promise* of a dinner just as this piece of parchment gives promise of an educated nurse, of one who by study and toil and training of the head, hand, mind and heart has fitted herself to undertake the most serious of all callings. I always enjoy reading the vigorous outline which Florence Nightingale gave of her conception of what a nurse ought to be. She believed that the object of training was to teach not only what was to be done but how to do it. The physician or surgeon should order whatever needs to be done for the patient's care, but the training of the nurse should teach her how to do it to his order. Training must also teach the symptoms of disease so that the nurse may know what certain symptoms indicate about any disease and whether the patient is worse or better when the symptoms change. *Telling the nurse what to do* is not enough and cannot be enough to make her work perfect. To use Miss Nightingale's words, "The trained power of attending to one's own impressions made by one's own senses, so that these should tell the nurse how the patient is, is the *sine qua non* of being a nurse at all." It is not sufficient to use "the sense you have got." The nurse's eye and ear, her smell and touch and even her taste are all to be trained and all may be as necessary to the welfare of her patient as her head. The nurse should be trained to observe, in fact her powers of observation require training. As Miss Nightingale says "Merely looking at the sick is not observing. To look is not always to see. It needs a high degree of training to look, so that looking shall tell the nurse aright, so that she may tell the medical officer aright, what has happened in his absence. Observation tells the nurse how the patient is, reflection tells what is to be done; training tells how it is to be done. Training and experience are of course necessary to teach us too, how to observe, what to observe, how to think, what to think. Observation tells us the fact; reflection the meaning of the fact. Reflection needs training as much as observation." These terse sentences go to the root of the whole theory upon which she wrought in her training of nurses.

In the light of her illuminating words how trivial and childish appear the objections which we hear to the so-called over-educated and overtrained nurse and the laudation heard even now in the year of Our Lord 1914, of the natural born nurse who "mothers" her patients, who needs no training and who only follows her heaven-born impulses and her womanly intuitions.

The first and foremost ideal in the mind of every one is clearly that of self-sacrifice. In your chosen calling you subordinate inclination to duty and become absorbed in the development of a purpose of personal service. This motive consecrates your work and gives it a human touch. Nursing without it is mechanical; with it you become transformed into ministers of mercy and find the fullest scope for enthusiasm and self-devotion.

Another ideal allied to it which is developing rapidly is that of helpfulness to the community. We find trained nurses now in great demand as school nurses, tuberculosis nurses, visiting nurses orthopedic nurses, and mothers'-relief nurses, nurses in charge of milk stations, social service workers and settlement nurses. Those who enter upon work of this character do so at much sacrifice of money and personal comfort. They could do "better for themselves," to use a popular phrase, if they devoted their time to private nursing, but they cannot disregard the call of the common weal and they forsake ease and the call of a good time to carry the gospel of health to the ignorant, the poor and the suffering. All praise to them! They are practically paying the debt which we all owe to the suffering poor. We owe it but they pay it.

There are compensations to the nurse for her life of self-sacrifice and her spirit of helpfulness. She becomes self-reliant and gains a mental poise, a breadth of sympathy and steadiness of purpose which are granted to but few. I need not urge you to cherish these ideals and cultivate their growth.

In receiving your training you have acquired new ideals of life and of personal service. You have the *esprit de corps* of your chosen profession. This represents a body of sentiment which has been growing in your minds for three laborious, but I trust, happy, years—somewhat, possibly as a result of the traditions which you have

inherited from those who have gone before you but unquestionably much more because of the growth and development of your own hearts, minds and characters during training. You have caught the spirit and received the baptism of new emotions, ideals and aspirations. I welcome you to the profession of nursing and I bid you God speed.

Original Articles.

THE RELATIONSHIP BETWEEN EPILEPSY AND MIGRAINE.*

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Epilepsy resembles migraine in many of its aspects. Both occur with great frequency as a direct inheritance from the family of either parent. Both recur with more or less periodicity in the individual. On the one hand the picture is that of an explosion of motor energy; on the other that of an explosion of sensory energy.

Each may be preceded by an aura referable to a disturbance in a definite cortical area. Although the aura of migraine presents the visual type in the form of scotoma and hemianopsia, while epilepsy commonly exhibits the pneumogastric aura, or the sensory or motor disturbance of the arm, face or leg; nevertheless, we may on the other hand have the migraine attack ushered in by paraesthesia of the arm, lip and tongue (with or without aphasia), while epilepsy may be preceded by visual disturbance, as dimness of vision or scotoma.

Not only may the same sort of an aura introduce an attack of epilepsy or migraine in different individuals, but in both diseases the warning may make its appearance independently without being followed by an attack. Just as in epilepsy the numbness of the hand or twitching of the fingers may come daily or several times a day over varying periods of time, only to be followed by the convulsive seizure at intervals of weeks, in the same way in a subject suffering from migraine attacks every few weeks preceded by scintillating scotoma, I have seen the appearance of daily attacks of the scotoma alone, over periods of weeks, each attack lasting from twenty to forty minutes.

The occurrence of psychic symptoms associated with the attack of migraine or epilepsy has been described by various authors; and indeed the attack in either disease may be replaced by a psychic equivalent.

Another common symptom frequently met with in both epilepsy and migraine is somnolence. It is astonishng to see a patient suffering intensely from hemicrania sleep soundly for a number of hours in the midst of the attack; and frequently attacks which come on during the day will disappear during sleep at night time. Just as somnolence appears often as part of the disease in migraine, so it may manifest itself in attacks of epilepsy, not as a result of exhaustion, but as a symptom of the disease. The following two cases are cited as illustrative of this rather than as being unusual in any way:

A boy of ten years, whose mother has suffered from periodical sick headaches since childhood, has had attacks for two years, in which there is a sensation of gas in the stomach lasting one or two seconds. When these come on he runs to his mother, saying he is afraid, and grasps her tightly, crying out "Don't let them hurt me!" or similar expressions. The pupils are dilated, the face congested and saliva drools from the mouth. The patient does not reply to questions, and after exhibiting these symptoms two or three minutes goes into a sound sleep for half an hour to an hour. Sometimes the pneumogastric aura is followed by convulsions.

A man of twenty-four years whose mother has periodical headaches lasting all day two or three times a year, has suffered for eight years from attacks of severe headaches, which always come in the left temple, recurring at intervals of eight or ten months. Each attack is ushered in by right hemianopsia, immediately followed by numbness of the right hand and wrist and right corner of the mouth, together with aphasia. This condition lasts half an hour, during which time the patient can walk around and understand conversation, but cannot speak. At the end of a half-hour dull headache in the left temple, associated with drowsy feeling and stupor appears, which, at the end of another half an hour, terminates with vomiting. If he can lie down and sleep when the aura begins, he awakes in less than an hour without discomfort.

The foregoing characteristics are only illustrative of points of *similarity* existing between the two diseases. There are however certain points of *relationship* which exist between them.

It is not the object of this paper to discuss the pathology of the two diseases in question. As is well known, various hypotheses have been advanced to account for the cause of the attacks in the two neuroses. None however can be accepted as generally true for all cases, and in comparing the two diseases we are forced to depend in accepting the diagnosis of migraine or epilepsy on the clinical picture presented. The features indicative of a relationship between epilepsy and migraine may be classed under the following heads;

(1) The interchange of one disease for the other in different generations of the same family.

(2) The appearance of migraine in early life, giving place to epilepsy later, with a resulting disappearance of the migraine or diminution of the intensity of the migraine attacks. In these

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cases the epileptic seizures may be ushered in by the same aura which gave warning of the earlier attacks of migraine.

(3) The development of migraine attacks in patients previously suffering from epilepsy, and in whom the epilepsy has been cured by bromide treatment.

(4) The appearance of symptoms of epilepsy in migraine attacks of certain individuals.

The interchange between epilepsy and migraine in different members or different generations of the same family has been remarked upon by various authors, as being significant in the consideration of the relationship of the two diseases.

Kovalevski found of the various hereditary diseases in the histories of patients suffering from migraine, that epilepsy occupies first place.

Bourneville found that migraine was present in the relatives of 24 per cent. of his cases of epilepsy.

Dejerine on analysis of Bourneville's cases found that in 250 epileptics 51.6 per cent. showed alcoholism, 24.5 per cent. migraine, and 21.2 per cent. showed epilepsy in the ancestors.

Féré, showed that in 108 cases of epilepsy, the father had migraine in 88 instances, and the mother had migraine in 116 instances. He further showed that out of 206 epileptic women, 40 had children who were affected with migraine.

Ulrich found that in five hundred cases of migraine 99 (or 20 per cent.) showed a direct or indirect relationship to epilepsy. In about 8 per cent. there was epilepsy in the relatives of the patients; in about 12 per cent. migraine and epilepsy occurred in the same individual.

The fact that attacks of epilepsy and migraine sometimes alternate with more or less regularity in the same person, may be due to the coincidence that the patient is suffering from the two diseases. For it would not be strange that two diseases so commonly found thriving on neuropathic soil should at times afflict the same individual. But substitution of one disease for the other in a person, or the occurrence of symptoms common to both diseases in an attack must indicate relationship. The occurrence of migraine in the early years of life of individuals giving place to epilepsy in the later years was first described by Liveing in 1873.

He cites the case of a woman of thirty-seven years, suffering from epileptic fits. The patient's brother and sister were both epileptic, though there was no history of the disease in either parent. The patient suffered from the age of twelve with sick headaches, coming chiefly at the menstrual period. These were frequently preceded by a visual aura of dim vision and numbness of the fingers. At the age of thirty-five the headaches stopped and were replaced by epileptic seizures, which also came at the time of the catamenia.

Liveing quotes another similar case, and follows it by a number of instances showing the connection between these two diseases, collected from the literature of the times.

Krafft-Ebing reports a case in which the epileptic attack ends in a hemicrania.

A woman of twenty-six years, whose mother and sister had suffered from hemicrania, had been subject since puberty to attacks of premenstrual migraine with scintillating scotoma. Two years previous to the time he first saw her, she had been observed to manifest a lapse of consciousness, which lasted about ten minutes, that is, as long as the scotoma had continued, during which time she made inarticulate noises and did not respond to questions. At the end of ten minutes, the patient regained consciousness, suffering from hemicrania, but was amnesic to all events which transpired during the disturbance of consciousness. Five months later she had her first epileptic attack during sleep, and when the convulsions had ceased she came to herself with her usual headache. Since that time the epileptic attacks have come always at night and are always followed by hemicrania.

Spiller reports two cases of patients who had had migraine since early life, in whom symptoms of abortive forms of epilepsy made their appearance later.

Gowers reports the case of a woman aged thirty-two years, who, at the age of eight years became subject to periodical headaches, which were preceded by dimness of sight, and usually ended after some hours with vomiting. They continued until the age of thirty years, when she became subject to epileptic fits. The headaches ceased entirely when the epilepsy began, and remained absent until she came under treatment. While under treatment the fits were arrested, but the headaches returned with greater severity than ever.

Turner cites the case of a man of thirty-six years, whose father was a confirmed epileptic and whose sister suffered from paroxysmal headaches. The patient had epileptic fits from the age of sixteen to twenty-five years, when they ceased and gave place to attacks of paroxysmal headaches, coming on in the early morning, lasting about three hours, and recurring every week or ten days.

Flateau in his recent monograph on migraine reports the case of a woman thirty-four years old, whose mother and sister had suffered from migraine, and who at the age of 17 had severe attacks of headache lasting two days. When menstruation began the headache attacks increased in severity. During the last three years before Flateau saw her she had developed typical epilepsy, and the headaches had ceased.

The following case was recently seen by the writer at the Massachusetts General Hospital.

She was a woman of twenty-seven who had been subject to periodical headaches from early childhood up to the age of nineteen. These headaches were preceded by blurring of vision, and were associated with vomiting. Her great grandmother suffered from paroxysmal headaches, but otherwise her family presented no history of epilepsy or migraine.

At the age of nineteen the attacks of headache ceased and were replaced by dream-like periods lasting several minutes, during which the patient was unable to move and could not reply to questions. In these periods the patient says there is a train of thought that she cannot afterwards recall. During the past year these attacks have given place to typical epileptic convulsions, recurring every two weeks in which the patient usually hurts herself in the fall, and has bitten her tongue. By the advice of her doctor she was recently married in the hope of thereby curing the attacks.

Hemianopsia as an aura in epilepsy is of rare occurrence. Gowers maintains that it never occurs, but as is well known, it is frequently seen as the first stage in an attack of ophthalmic migraine. The following case observed by the writer illustrates the fact that it may occur as an aura of epilepsy, and so closely does it conform to the migraine type of hemianopsia in its character and long duration before the attacks that it strongly suggests a relationship between the two diseases.

A man of thirty-four has had attacks of epilepsy since the age of eighteen. There is no history of epilepsy in his parents or in their immediate relatives, except that his mother's father who was alcoholic had convulsions in late life. The patient has one brother and three sisters, one of whom has severe headaches periodically, which are not, however, associated with eye symptoms.

The patient has had convulsive attacks since the age of eighteen, coming four or five times a year. These are always preceded by a right hemianopsia. The loss of vision begins on the right side and extends inward until it reaches the median line in the course of one or two minutes, and at the same time there may be flashes over the blind field after the hemianopsia is well established. The hemianopsia lasts from fifteen to thirty minutes before unconsciousness sets in. This delay usually enables the man to reach home from his office before the convulsions begin. The loss of consciousness is immediately followed by general convulsions, lasting several minutes, after which he lies in a heavy sleep two or three hours, and awakens with a heavy feeling head and is lame all over for from one to three days. The attacks persist with the same frequency in spite of liberal doses of bromide and careful regulation of the general condition.

From the age of ten to eighteen years this patient had severe headaches two or three times a month which came on during the day or night and lasted three to five hours. The pain was across the forehead, never limited to one side of the head, and was never preceded by scotoma or hemianopsia, nor followed by vomiting.

Krafft-Ebing, Savage, Féré, and Cornu have shown that in certain cases where epilepsy attacks have been cured by the bromide treatment, migraine may develop as a substitute, and Flateau asserts that his experience corroborates this.

The following case, a patient who has been under the observation of the writer for five years, will illustrate this point.

He was a boy of 14 years when first seen in May, 1908. There is no history of epilepsy or migraine in either parent or in their families. At the age of two, while teething, he had a convulsion lasting five minutes. At the age of three, while feverish with bronchitis, he had a second convulsion lasting five minutes. A third convulsion was at the age of six, and the fourth at the age of eleven. For the three years previous to the time he was seen by me, he had had convulsions every three to six months, mostly in the morning before getting up. The attacks were of a typical form of major epilepsy. He had led his class at school in studies, and excelled in athletics. Under treatment of regulation of diet and moderate doses of bromide the attacks ceased. Three years later however, while still under treatment, he had an attack which he described as follows:

"On the 28th of April at eleven a. m. I was suddenly seized with a dimness of vision which lasted twenty minutes, at the end of this time I could see as well as ever, but the instant the dimness left I felt a drawing sensation at the tip end of the thumb of my left hand for a space of two minutes. This sensation passed from one finger to the other in the order of the fingers and up into the hand, the little finger receiving the strongest drawing. I then felt the same sensation half way up the left arm and in the upper lip and roof of the mouth on the left side of the face, all of which passed away in two or three minutes, and was followed by dull headaches over the eyes."

During the next two years these attacks were repeated at intervals of three to six months, and not until recently did the convulsions return, when the patient became lax in following his treatment.

That the headache attack with its visual and paraesthetic aura which replaced the convulsion, was not an abortive form of epilepsy seems probable, since it presents the clinical picture of migraine. As is well known, the aura of migraine lasts over a prolonged period of time, while that of epilepsy precedes the attack by only a short interval.

This case is interesting in connection with one reported by Féré in his book on "Les Épilepsies et les Épileptiques," written in 1890.

A woman of fifty-four years while writing a letter suddenly felt a severe pain over the right eye, and "the flickering lights of a thousand candles" appeared on the right side of her field of vision. So severe and sudden was the pain that she thought some one had thrown a stone at her, and on going to the door to see who had done it, met her husband, and was surprised to find she could not see the left half of his face. When she tried to explain to him her condition, she was unable to manage her tongue, or to articulate her words. She then felt her fingers and thumb of the left side flex on the palm with a pain extending up the forearm, and the whole arm was raised to the height of the shoulder, while the face was turned toward the right and the lips were seized with convulsive twitchings. These convulsive movements lasted only a minute, but the headache, hemianopsia and aphasia persisted for fifteen minutes. At later intervals there were five recurrences of similar attacks, and when bromide treatment was instituted the convulsive attacks no

longer appeared; only the pain, scintillating scotoma, and hemianopsia remained.

The occurrence of migraine attacks and epileptic seizures in the same individual and ushered in by the same visual aura has been described by various authors. The following case, observed by the writer, is an excellent illustration of this phenomenon:

A man thirty-seven years old, a tanner by trade, gave a history of migraine in both parents: the mother had periodic sick headaches as a girl, but outgrew them in middle life; the father has had periodic occipital headaches of great severity, associated with vomiting, ever since he can remember. There was no history of epilepsy in the family.

The patient had periodic headaches with nausea and vomiting as a boy, which continued until he was eighteen, none of them being associated with visual disturbance.

About three years previous to the time he was seen by the writer, he began to have left supra-orbital headaches, preceded by flickering scotoma, but not associated with nausea or vomiting. He had forty or fifty of these attacks during the three years, always coming on in the day-time and lasting a number of hours. His scotoma consisted of a luminous spot before the eyes, which contracted and expanded like the opening and closing of a butterfly's wings.

About two years previous to his first visit, he one day had a violent attack of the scotoma, and lay down on a couch, asking a companion to get him a glass of water from the next room. The last thing he remembered was that the furniture in the room appeared to be jumping up and down with the flickering of his scotoma. When his companion returned with the water the patient was found on the floor in a general convulsion.

Two similar attacks occurred later at intervals of about six months—one in a barber's chair, the other while driving.

The writer was called in consultation to see this patient, who was suspected to be suffering from a brain tumor. Three days previously he had been found in bed in the morning suffering from intense frontal headache. This had persisted since and had required hypodermic injections of morphine. There had been occasional attacks of vomiting during this time. The patient had been much run down during the previous months with overwork and domestic worries.

The physical examination showed a well-developed man. The pupils were equal and reacted well. Ophthalmoscopic examination was negative. There was no impairment of any of the cranial nerves. The reflexes were normal. There was no Babinski. The temperature was 98.6, the pulse 45, and blood pressure 130.

For many days preceding the onset of this severe and prolonged headache, and for several weeks following it, there were daily attacks of the flickering scotoma lasting a few seconds, sometimes occurring two or three times a day; and a subsequent examination of the visual fields by Dr. George Derby revealed a homonymous scotoma still persisting.

The persistence of a scotoma of this sort would raise the question as to the existence of a permanent organic lesion of the brain, which might account for the appearance of the convulsive attacks. Cases have been described however, in which the scotoma may continue for a long time after the attacks of ophthalmic migraine. Inasmuch as we often find patients suffering from ophthalmic migraine exhibiting at one time the scotoma followed by the headache, and at another time accompanied by a headache, just as the aura which precedes epilepsy may be followed by the convulsion or occur independently, it is difficult to say whether the above patient's minor attacks should be considered as attacks of aborted epilepsy or migrainous scotoma.

The appearance of symptoms of epilepsy and migraine in the same attack of an individual has been noted by various observers.

Tissot in 1780 wrote that he had very often seen convulsive movements of the forehead, eyelids and face muscles, associated with migraine, and that sometimes the convulsions involved the entire body.

He described the case of a girl of twelve, who together with the hemicrania attack felt a numbness in the little finger of the same side, which spread successively to the other fingers, the forearm, upper arm and neck with occasionally a spasmodic retraction of the head and spasm of the jaws. There was no loss of consciousness, but the attack was followed by vomiting.

Parry in 1825, wrote that he had seen instances of obfuscation of sight lasting many hours after an epileptic fit, from which the patient was otherwise fully recovered. In his case it was only the perpendicular half of the object that could be seen.

Price reports the case of a patient, twenty-one years old, whose father suffered from attacks of severe headache, preceded by blindness for a few seconds, and then by numbness of the arms, tongue and lips. The father also had two sisters afflicted with migraine. Six out of seven of the patient's brothers and sisters also had migrainous attacks, and in three of them the headaches were associated with numbness or weakness of one half of the body. The patient had had paroxysmal headaches since he was six years old, coming several times a year and occasionally preceded by numbness of the right side of the body. This paresthesia began in the toes and crept up, affecting in succession the leg, arm, trunk, face and tongue, being felt most markedly in the hand and foot and but slightly over half the trunk. At times he had been unable to control the affected arm and leg during the attack. The paresthesia lasted from twenty minutes to an hour, and was followed by severe hemicrania on the side of the head opposite the numbness, lasting from twelve hours to three days. Other attacks were preceded by blurring of vision and hemianopsia. In a "light attack" seen by Price, the face was pale, the lips cyanotic and the speech thick; while occasional twitchings of all four extremities were noted, the arms flexing at the elbows, and the thighs adducting.

That epilepsy is related to migraine is still denied by certain men who have written on the subject, although the majority of the authorities accept the fact.

Liveing in his early work on migraine published in 1873, recognized the relationship between epilepsy and migraine. He writes, "Epilepsy is doubtless the neurosis which exhibits the closest connection with megrim, both in the occasional replacement of the one affection by the other, and also in the occurrence of cases of character intermediate between the two."

Féré says that epilepsy is among the frequent accompaniments of ophthalmic migraine, especially partial epilepsy. Ophthalmic migraine may develop in a person who has previously had partial epilepsy and still has attacks of paraesthesia in the side of the body in which the epileptic movements occurred. He also speaks of cases in which migraine may precede epilepsy, or the two may occur together, or in which the migraine may become less severe after the epilepsy has made its appearance.

Wernicke in 1881, maintained that migraine is not infrequently complicated with certain phenomena of epilepsy, and may appear as a forerunner of epileptic attacks.

Kovalevski calls attention to the substitution of one neurosis for the other. Epstein regards migraine as the equivalent of epilepsy in some cases. Cornu maintains that one neurosis may be transformed into the other. Charcot and Krafft-Ebing maintain that when scintillating scotoma appears in an epileptic attack it is related to migraine. Oppenheim writes that migraine sometimes, though rarely, develops into epilepsy.

Turner, in his book on epilepsy, states that he has observed a relationship between epilepsy and migraine in 4.3 per cent. of his cases. This relationship manifested itself in one of the four following ways:

(a) Periodic headaches in one parent, and epilepsy in the off-spring, and vice versa.

(b) Headaches in early life, replaced by epilepsy in later life.

(c) Epilepsy in early life, replaced by headaches in later life.

(d) Both existing simultaneously in the same individual.

Spratling, in his book on epilepsy, gives but little space to its relationship with migraine. In speaking of the sensory equivalents of epilepsy, he writes "The Migraines also belong to this group. The relationship between these affections and epilepsy has long been in dispute. I believe it is associated with the disease, especially in women, who more frequently show a periodicity in convulsive phenomena than men."

Ulrich recognizes the following conditions to explain the occurrence of epilepsy and migraine in the same patient:

(1) Migraine may exist as a symptom of epilepsy.

(2) Both may develop side by side in an individual, springing from the same low order of nervous development.

(3) Severe migraine attacks may produce convulsions.

(4) Constant recurrence of migraine attacks may lead to the development of true epilepsy.

(5) Migraine attacks may disappear as epilepsy develops, just as they do in the development of grave organic diseases of the brain (dementia paralytica).

Spiller expresses his views on the subject by the following remarks:

1. Attacks of migraine occur with nausea and vomiting; this form is known as simple migraine, and usually remains unaltered during the life of the patient.

2. In other cases visual disturbances (hemianopsia, scintillating scotoma, and amaurosis) are associated with migraines, and the disease is known as ophthalmic migraine.

3. When paralysis of the ocular muscles occurs with the migraine, the disease is described as ophthalmic migraine.

4. Migraine, especially the ophthalmic form, is related to epilepsy, and the attacks of migraine may precede for many years the convulsive attacks of epilepsy, although in most cases of migraine, no convulsions are ever detected.

5. In some cases epilepsy appears in the form of one or more of the disturbances seen occasionally with migraine; and later, even after many years, convulsions develop. The disease may be epilepsy from the beginning. It matters little, with our uncertain knowledge of the pathology of the two diseases whether we regard these as abortive cases of migraine that later become associated with epilepsy, or as abortive forms of epilepsy (sensory epilepsy) in which the convulsions later become apparent, provided we recognize a relation between some forms of migraine and epilepsy.

Flateau in a study of five hundred cases of migraine has observed a relationship to epilepsy in thirty-six cases, or 7.2 per cent. In certain of these cases the attack in the individual manifested itself first as migraine, then as epilepsy of the petit mal type, and finally in later life as convulsive attacks with the epileptic Dämmerzustände.

Among those denying the existence of a relationship between the two neuroses in question the opinions of the following men are to be valued in the light of their wide experience with these diseases:

Gowers writes, "The traces of a definite relation of migraine to epilepsy are slight. In extremely rare instances one affection may develop while the other goes an, and, as we have seen, the same premonitory disturbance may even be at-

tached to each. But such cases are so rare as rather to emphasize the rule to which they form exceptions. When the exceptions are carefully examined, they show that any relation to epilepsy is indirect. Epilepsy develops from migraine as an indirect consequence of the effect of the intense pain, and associated cerebral disturbance. The influence of this may be traced through stupor, sleep, delirium and loss of consciousness, to definite epileptic symptoms."

Hubbell, the ophthalmologist, states that he has questioned three to four hundred patients who were afflicted with ophthalmic migraine, and in not one of them has he found that epilepsy existed in any form, nor was epilepsy described in the antecedents or descendants of the patients.

Strohmayer has often found epilepsy and migraine existing in the same person, the epilepsy usually making its appearance later than the migraine. Substitution of one for the other he has not found. When this appeared to take place the migraine was but a symptom of the epileptic condition, or epilepsy made its appearance as a new element in addition to the migraine. In the atypical cases, the diagnosis between the two diseases may be difficult.

Moebius maintains that migraine is essentially different from epilepsy. Under certain circumstances it may be impossible to say whether migraine or epilepsy exists, as when the aura alone appears. But in such cases it is either one or the other. The difficulty lies only in the inability to recognize which it is. If we put aside the rare cases in which migraine turns into epilepsy, we have only to consider the cases in which epileptic as well as hemieranic symptoms exist. In these cases we are concerned with epilepsy which simulates migraine. As a general rule we can assume that where there are convulsions the case is one of epilepsy. "Migraine symptoms," he says, "are exclusively sensory and I never made a diagnosis of migraine where there is the slightest appearance of convulsions at the corner of the mouth or in the tongue. One can say, that when convulsions appear in an attack it may seem to be migraine but is in reality abortive epilepsy."

Moebius denies for instance that the case of Féré cited above represents a change from epilepsy to migraine, but maintains that it indicates that through bromide treatment the convulsive feature of the attack has been eliminated, leaving what is really an abortive form of epilepsy.

That the attacks similar to that reported by Price, and described in the foregoing pages of this paper, should be relegated to the province of epilepsy according to the claims of Moebius, on account of the twitching spasms of the limbs, seems arbitrary, inasmuch as the clinical picture is that of migraine; for we must admit that paraesthesia of long duration is an aura distinctly characteristic of migraine, as is also hemianopsia, while the absence of loss of consciousness with the prolonged hemicrania, complete the clinical picture.

One cannot review the statistics of various authors which describe the frequent interchange of epilepsy and migraine in different generations of the same family without being convinced that they indicate a definite relation between the two diseases. Nor can one read the histories of the cases described in the earlier pages of this paper in which substitution of one neurosis for the other occurs in the lifetime of the individual without having his conviction of this relationship strengthened.

Moebius in denying that there is a relationship between the two neuroses puts this evidence aside with the statement, "If we regard the rare cases in which migraine turns into epilepsy," while Gowers passes by the importance of this relationship with the statement "If a person subject to migraine becomes liable to epilepsy, the migraine may cease, or become slight or rare, and return if the fits are arrested."

We must also accept in considering the relationship the group of cases in which bromide treatment of epileptic fits changes the clinical picture of the attack from that of epilepsy to that of migraine.

We still are confronted however, with those cases presenting attacks apparently migranoid in character but also associated with convulsive movements. Shall we accept the dictum of Moebius that the presence of convulsive movements must relegate these cases to the domain of epilepsy? It seems to me that since we must accept a relationship between the two neuroses in different generations of the same family and in different attacks of the same person, that surely we may recognize that symptoms of epilepsy in an attack of migraine may indicate the existence of a relationship between the two diseases in that attack, and need not, according to the dictum of Moebius, stamp that attack as essentially epileptic.

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A RADIOGRAPHIC STUDY OF THE MASTOID.

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THE following observations were made from a large series of X-ray plates in possession of the Massachusetts Charitable Eye and Ear Infirmary and I wish to thank the various members of the staff for their permission and assistance. In many instances the X-ray interpretations could be verified by operative findings.

The use of the X-ray plate for aid in diagnosis of mastoid conditions is recent and promises to be of great value, especially in differential diagnosis between an acute mastoiditis and an acute exacerbation of a chronic sclerosed mastoid. As a rule, the mastoid picture shows a more minute change in pathology than is shown in that of the accessory nasal sinuses. The reverse is true perhaps of transillumination. For detecting changes in the antrum of Highmore, for example, the transilluminator is more accurate than the X-ray, but in the mastoid the X-ray will differentiate between a congested though cellular mastoid, one whose cells are broken down and one that is sclerosed, while the transillumination of the mastoid simply shows some pathological condition obstructing to different degrees the rays of light.

It is not necessary to go into the details of how the X-ray exposures are made and the plates developed. Suffice it to say that the side of the head to be skiagraphed is laid on the photographic plate with the film side up. Sometimes the auricle is left in its natural position and at other times it is turned forward. The rays are directed through the head from a point posterior to the opposite mastoid, so as to avoid superimposing any dense structures of the head. For this reason the bony external auditory canal is not shown as a distinct oval but more as a mottled area, and other relations are more or less distorted. The more carefully a plate is exposed and developed, the more accurate and easy will be the interpretation. A sclerosed or normal cellular mastoid can be made out in almost the poorest plate but for interpretation of slight pathological changes in acute matoiditis a good plate is an absolute necessity. Plates of both mastoids should be taken in all cases for comparison.

The normal cellular mastoid projection shows the cellular spaces clearly and the thin partitions are clear cut. Anterior to the cellular area is a roughly triangular, dense area which is the petrous portion of the temporal bone. Within this area the bony meatus shows as a less dense and mottled spot. Had the projection been taken in the direction of the auditory canal, the meatus would have been shown as a hole. Anterior to this triangular area is seen the ascending ramus of the jaw and its articulation. The upper border of the triangular area is formed by the zygoma and its projection posteriorly as the linea temporalis. The middle cranial fossa lies above the border. The zygomatic cells, when present, often show projected in and above this border. The antrum in a normal, cellular mastoid is rarely distinguishable from the other cellular spaces. The position of the lateral sinus and sigmoid curve can generally be made out but is not as distinct as in a sclerosed mastoid. As in the latter, the anterior border is more distinct. In a general way, it passes from the upper, posterior part obliquely downward and forward to the bulb which lies under the middle ear. The tip is always seen as a distinct free border. The tip may be more or less solid or filled with cells so as to leave only a shell-like cortex.

Posterior to the sinus is seen the posterior cranial fossa in which lies the cerebellum. The suture lines of the occipital, parietal and mastoid bones often can be seen distinctly. In the young the cellular area is much restricted and the cells are generally smaller than in older individuals. Not unfrequently there is much variation in the size, shape and arrangement of cells in different cases but there is a striking similarity between the two mastoids of the same individual. If there is a small mastoid on one side, the other will be small. If one mastoid has small diploëtic cells, the other has also, or if one has large pneumatic cells, such are found in the other. The outline of the cellular area is generally similar in both. The auricle must be mentioned here, not because we desire its projection, but because its shadow frequently masks or accentuates some border and allowance must be made for it.

The X-ray picture of the mastoid in acute conditions varies as the pathological processes advance. In the majority of cases of acute otitis media the mastoid cells are affected simultaneously, even though the pathological condition be only a participating congestion. In all severe infections the mastoid cells are probably likewise infected, and pus from the mastoid is added to that from the middle ear. In this congestive stage the natural cellular appearance of the mastoid would be preserved with the exception that there would be a loss of definition between the cell spaces and their partitions. In fact the whole plate of the mastoid region shows less penetration to light than the other side. This is the most difficult stage of mastoid inflammation to interpret. Almost perfect plates of both sides, equally exposed and developed, are required. This picture can be simulated by other inflammations and congestions of the surrounding soft parts, most commonly, furunculosis of the external auditory canal. Fortunately, this

stage of mastoid involvement rarely requires surgical intervention.

After six to ten days the picture changes in cases of virulent mastoiditis. There is now seen a distinct blurring of the mastoid structure. The cell partitions are barely made out and there is very little contrast between the cell spaces and their partitions. At the end of this time, actual loss of some cell partitions may be made out. In such a mastoid, the cell spaces would be found filled with pus, the mucous membrane lining swollen and polypoid, and there would be some softening of the bony partitions.

Plates of mastoiditis which has progressed for two, three or four weeks show still different pictures and usually are easy to interpret. At this stage is noted distinctly loss of cell partitions, especially in the tip or in the center over the lateral sinus. Areas less affected by the pathological changes still show blurred cellular structure. Later, well advanced cases may show no cellular structure in any part and may even show cavity formation due to destruction of bone. These mastoids, as found at operation, are very vascular, broken down, and filled with granulations and a little pus.

Perisinous abscess in the central portion of the mastoid is sometimes diagnosed in those cases above spoken of where cavity formation is noticed is that region. Where the bony wall of the sinus and the cellular structure over it has been absorbed by the pathological process, it is conceivable that such a cavity should show in the plate because the rays can thus more easily penetrate that area. A perisinous abscess well posterior, and an extradural abscess, both being partially beyond the limits of the normal cellular mastoid, frequently show up distinctly. The impression is that of a cavity or less dense area surrounded by a dense areola fading off gradually above and posteriorly. A brain abscess has not been observed. Sinus thrombosis is probably not recognizable to any extent. There is no reason to believe that clotted blood has any different effect on the penetration of the rays than fluid blood. The reason for the impression of the lateral sinus on the plate will be spoken of in connection with the sclerosed mastoid.

There are many cases of mastoiditis that never come to operation and, after weeks or months, the majority get well. The X-ray seems to throw some light on what happens to the mastoid in these cases and how nature cures them. It has been mentioned that the cell partitions are absorbed as the process goes on and all the spaces are filled with granulations and the quantity of pus is diminished as the virulence of the infection is gradually overcome. Have we not now a condition similar to that after operation when the mastoid cavity has been cleaned out and later filled with granulations in the process of healing? What happens to the post-operative cavity? Regenerated bone, usually homogeneous, but rarely cellular, fills the cavity as is seen in X-ray plates of old post-operative cases and as is found in operating on cases of recurrent mastoiditis. In the post-operative cases the bone regenerates from the periphery of the cavity and frequently leaves a seam of fibrous tissue directly under the cicatrix of the incision. It is also observed that bone is not regenerated in the area where the sinus was uncovered by operation. With the above clinical and X-ray evidence that post-operative mastoid cavities fill in with granulations followed by regenerated bone, can it be doubted that this same process takes place in an unoperated case cured by nature? A few of these transition cases were found in which the X-ray showed almost a homogeneous shadow and at operation a soft, bleeding, regenerating bone and granulation tissue was found but no pus. If for any reason, as, for example, carious ossicles on a marginal perforation, the antrum and middle ear did not heal as the mastoid was filling in with bone, a chronic suppurative ear would result.

We have considered above what takes place in an adult, fully developed mastoid. Let us now consider what would be the result in babies and young children where there is only an antrum and rarely a few cells budding off. In this group occur a goodly proportion of our acute suppurating ears and it is a well known fact that discharge from a baby's ear is very chronic. When operation is performed the antrum is found filled with granulations. Though the antrum is of about adult size, the mastoid tip and surrounding parts are proportionally smaller and close to one another. The normal antral lining has been destroyed so that as the child grows the budding off of cells will not take place. The bony parts will enlarge some but not in proportion to those filling with cells. The sinus is left nearer the antrum and the groove is deeped in the bony parts. Does not this explain the small, sclerosed mastoid of later life with its ivory like texture and its lateral sinus so close to the posterior wall that easy access to the antrum is impossible? On the other hand, how rarely does a lateral sinus obstruct the surgeon's passage to the antrum in an acute cellular mastoid.

Let us now consider the appearance of the sclerosed mastoid in the X-ray plate. The sclerosed mastoid is the type always seen in cases that have or have had a chronic suppurative middle ear and mastoid. So constant is this relation that with one exception, all cases diagnosed clinically as a chronic suppurative ear showed a sclerosed mastoid. The one exception was a case of atresia of the canal with granulations and foul pus. The mastoid was cellular and the middle ear normal after curing the canal. The reverse, however, is not so constant. Acute exacerbations of a chronic suppurative ear or acute otitis media in an ear which was once a chronic suppurative ear frequently can-

not be differentiated clinically from an acute attack in an otherwise normal ear. Here, the X-ray shows us the past history as represented by a sclerosed mastoid. And again, given an X-ray plate of a sclerosed mastoid, it is practically impossible to detect the presence of an acute inflammation.

In a completely sclerosed mastoid no cells whatever can be seen. The bone looks smooth and dense. The meatus and middle ear are seen as in normal mastoids as a less dense area. Usually the antrum shows as a mottled area just above and posterior to the meatus. The lateral sinus generally shows very distinctly in this type of mastoid. The more dense the sclerosed bone and the longer it has existed, the more distinctly does the sinus stand out. The anterior border of the sinus is generally more distinct than the posterior. In some cases the latter can hardly be defined from the surrounding bone. The sinus shows so clearly in this type of mastoid because of the fact that the sigmoid groove is very deep in the mastoid bone. This makes it easy for the rays to pass through the small amount of bony cortex over the path of the sinus while it is difficult to penetrate the mass of sclerosed bone on the borders. The fact that there is blood in the sinus does not help to make it conspicuous. On the contrary, it would tend to limit the contrast because light can pass less easily through blood. In cases of cellular mastoids, the dense borders are replaced by cells which obstruct the rays very little and this explains the inconspicuousness of the sinus in the normal mastoid. The position of the sinus varies in the different cases and the position in the plate is of some value to the surgeon before operating. One cannot lay a measure on the plate and say that the sinus is just so many millimeters posterior to the posterior wall of the canal. The projection so measured would be deceptive for several reasons. First, the Röntgenologist may have placed the heads at slightly different angles, or the shape of the individual head made this imperative. The course of the sinus not only varies, as seen in a lateral projection, but may be nearer the surface in some cases than in others. The more marked the light penetration over the sinus, the more superficial it must be. The more acute the angle at the knee (junction between sinus proper and sigmoid portion), and at the same time superficial and projected close to the posterior wall, the more troublesome it will prove while excavating a passage to the antrum. In some cases the anterior wall of the sinus can be seen projected over the posterior and inferior portion of the antrum and in such cases the sinus is liable to be uncovered before reaching the antrum.

Some sclerosed mastoids, especially the larger ones, occasionally show a large area about the antrum or extending down toward the center which is less dense and mottled in appearance. At operation such a mastoid is found to be broken down with areas of pus, granulations of cholesteatome. Sometimes a distinct cholesteatome cavity may be seen.

The appearance of the tip of a sclerosed mastoid which dates from infancy is often characteristic. As had been said, the tip cannot be developed by budding cells from the antrum nor can it be filled in by regenerated bone after destruction of the existing cells as in cases in which the sclerosing process started later in life. In these cases the tip is densely sclerosed but has fine wavy lines, as is seen in ivory. This appearance has been interpreted as diploëtic but is not found so at operation. These cases give the best detailed pictures and at times the mastoid vein and foramen is seen and on two occasions the Fallopian canal could be made out. A line of fracture through the mastoid was shown clearly in a plate and later was demonstrated by operation.

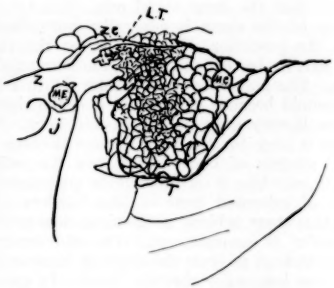
There is one type of case that has not yet been spoken of, namely, the so-called effectus ear. By that term is meant any ear which shows by scars or perforation of the drum membrane that there has been a past suppuration. An X-ray plate of such an ear shows all degrees, from a normal cellular mastoid, partly cellular, semi-sclerosed to a completely sclerosed mastoid. the same patient may have a sclerosed mastoid, on one side and a semi-sclerosed or normal mastoid on the other and yet both ear drums are effectus and there is history of past ear trouble. This observation may be easily explained. It is well known that a mild acute ear can cause a scar by rupture of the drum or by having a paracentesis done, suppurate for a short while and then dry up without distinctive involvement of the mastoid and yet be classified as an effectus ear. Had this process gone farther before clearing up there would have been more damage to the drum and the mastoid would have been structurally altered. Partial sclerosis, which always advances from the periphery, would have resulted. The cells remaining were either uninjured cells that escaped the suppuration or a regeneration of cells, the latter having been observed clinically by others. The fact has been known clinically that a discharge existing for years in a chronic suppurative ear may cease and the drum cicatrize and in these cases is to be found the explanation of the sclerosed mastoid seen in an effectus ear. Nothing shows more clearly than X-rays of effectus ears the varying degrees in which suppurations in the middle ear affect the mastoid structure.

The following more detailed statistics may be of interest. The total number of mastoid pictures tabulated was 460. Many others were discarded either because the plates were poor or because of insufficient data. The number of pathological mastoids was about evenly divided between the right and left sides. There were many more sclerosed mastoids on the right side

than on the left but the number of acute mastoids on the left side equalized the division. This coincides with the records of the mastoid operations performed at the Infirmary for the past ten years. Although one side may prevail over the other for a given period, the average is about the same for each side.

In cases where the clinical diagnosis of chronic suppurative ear was made, 94% showed total sclerosis of the mastoid and 6% semi-sclerosis. In the cases where a diagnosis of effectus ear was made, 56% were totally sclerosed, 27% semi-sclerosed, and 17% were cellular or normal. In cases where no diagnosis of a past or present suppurative process was made, 92% had normal mastoids and 8% were sclerosed or semi-sclerosed. 10% of the cases diagnosed as acute suppurative otitis media showed sclerosed or semi-sclerosed mastoids. These represent the cases of acute processes superimposed on an effectus ear, or the acute exacerbation of a chronic ear. These latter are often difficult to differentiate clinically. The conditions found at operation were compared with the clinical and x-ray diagnoses in seventy-five cases.





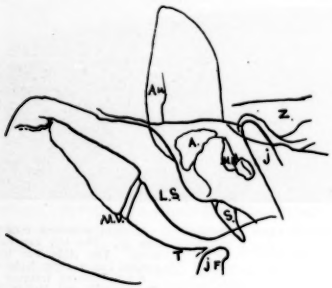
A left normal cellular mastoid. Female. Age 26. The right mastoid was sclerosed from a chronic suppurative ear of 12 years' duration.
M C, mastoid cells. Z C, zygomatic cells. Z, zygoma. ME, middle ear and canal. j, ascending ramus of lower jaw. T, mastoid tip.



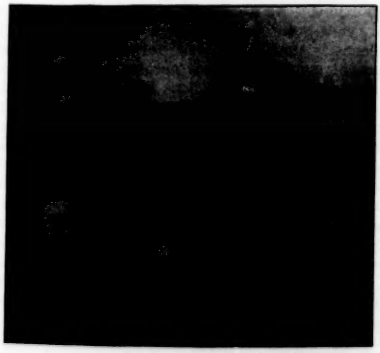


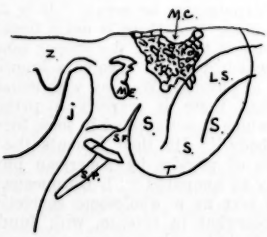
A right acute destructive mastoiditis. Male. Age 48. A discharging ear for two months.
T, remains of mastoid cortex at tip. F, homogeneous area where all cellular structure is replaced by pus and granulations. C, mottled area suggesting some remnants of cellular structure bounded above by the linea temporalis. P A, shadow due to postaural abscess and granulations over the sinus. j, ascending ramus of lower jaw. Au, auricle. At operation there was found a postaural abscess, perforation of the cortex and the mastoid filled with pus and granulations. Some cellular structure was found about the antrum.





A right sclerosed mastoid. Female. Age 12. The left mastoid was similarly sclerosed and verified at operation. Both ears had discharged since five years of age.
Au, auricle. L S, lateral sinus. S, styloid process. Z, zygoma. j, ascending ramus of lower jaw with the articulation. M E, middle ear. M V, mastoid foramen and vein. T, sclerosed tip. jF, jugular foramen. A, less dense area in sclerosed bone suggesting site of antrum.





A left semi-sclerosed mastoid. Male. Age 50.
M E, middle ear and canal and shadow of maleus. Z, zygoma. j, ascending ramus of lower jaw. M C, remnants of some ill-defined mastoid cells. L S, lateral sinus. Posterior border not distinct. S S S, sclerosed area. The wavy ivory-like structure is visible in the negative. T, mastoid tip. S P, styloid process. S F, stylo-mastoid foramen and Fallopian canal.



A right sclerosed mastoid showing a line of fracture. Male. Age 36. The left ear was an effectus ear and the mastoid sclerosed. The right ear had discharged for three weeks and the patient had a right facial paralysis for that length of time. F F F, line of fracture from the occipital suture (S F) across the mastoid and facial ridge (F R). S A, softened area in the mastoid. S S, sclerosed area. T, mastoid tip. L S, lateral sinus. L T, linea temporalis. Z, zygoma. j, ascending ramus of jaw. At operation the line of fracture was found in a sclerosed mastoid with a softened and broken-down centre.

LABORATORY PHYSIOLOGY IN COLLEGE AND IN MEDICAL SCHOOL.

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In 1885, Professor John C. Draper of the Medical Department of the University of the City of New York published his highly interesting book entitled "Medical Physics." By way of introduction he says: "It is no exaggeration to say that there is not a tissue, organ or function of the body, the proper comprehension of which does not involve a knowledge of the laws of physics. We may with equal justice affirm that there is scarcely a principle of physics which is not applied in some form in the human body." He then laments the general ignorance of physics by American physicians, especially as compared with Europeans, and offers his text as a wholesome corrective. He deals, somewhat *in extenso*, with fundamental principles, but makes many pioneer applications of these principles to the science of medicine.

Nearly thirty years have passed since this work of Dr. Draper first appeared. During this period the teaching of Physics as a separate subject has been taken up by many schools, carried for a while, and subsequently dropped; not, however, without distinctly affecting methods of teaching. We take note of physical principles in pathology, surgery and hygiene, but more particularly in physiology a greater part of whose manifestations are simply physical. Yet in these several branches of medicine, use is made chiefly of such of the data of physics as are directly applicable; the broad general principles are no longer taught in the medical school. We have come to see that medical science is specific, not general; deals not with the universality of law, but with the operating of universal law under particular, well-defined conditions. As a consequence of this change in our view-point a knowledge of the science of physics is now demanded not as a part of the medical course but as a necessary prerequisite. Knowledge of physical laws is, as Draper urged, essential to the proper comprehension of bodily functions, but that knowledge must be acquired where universals are taught,—in the academic side of the university; whereas a knowledge of the specific applications of those laws to the functioning human body must be learned in that department of the university devoted to the special study of the human body, to wit, in the medical school.

A similar comparison might be drawn from the methods of teaching chemistry. Not so many years ago, nearly all schools used valuable time teaching medical students fundamental principles in chemistry:—the laws of chemical combination and dissociation, nomenclature, periodicity, atomic theory, reactions and compounds of the metals and non-metals. Today, however, all of this general knowledge must be acquired before entering the medical school; and we are looking forward to the time when organic chemistry together with qualitative and quantitative analyses will also be a part of all premedical courses. Here again we recognize the principle that knowledge of general application should

be acquired in the academic side of the University; in its place in the medical school we are to teach the application of those general laws in the determining of the problems of human metabolism, in investigating physiologic and pathologic analyses and syntheses, and in estimating all those chemical reactions characteristic of bodily activity.

Since we have accepted this welcome readjustment in the departments of physics and chemistry (moved somewhat hurriedly albeit tardily thereto by the suasion of the Council on Medical Education), why should we not continue the good work in other departments, notably in the department of physiology? In our medical schools, in the department of physiology, we are giving courses parts of which properly belong to the work of the high school and college. We spend many long hours in the discussion and demonstration of fundamental biological laws (e. g. nerve-muscle reactions), studies as much out of place in the routine medical course as would be discussions of work and energy, motion and force. We seem to assume that there are no other agencies for the teaching of physiology as a pure science, and that, perforce, we must be elementary before we can be advanced. But there exist other excellent agencies for just such elementary training; hence we have no justifiable excuses for allowing our methods to lag ten to twenty years behind the pedagogical spirit of the times. As in chemistry and physics, we should require that all physiological data having a general application be taught in a premedical course, so that time may be reserved in the medical course in physiology for a dealing with data concerning human functioning specifically. "But" urges a highly-respected correspondent "there is no such thing as a human physiology; physiology is the same in frogs and cats as in man." Qualifiedly, yes; when considered as a pure science,—as a problem in biology; but not so when considered as an applied science. Aside from the many variations between physiologies of the higher and lower types, it is also true that in so highly complex a specialty as modern medicine there is a specific physiology—a physiology of the living, human body concerning whose functionings and varied manifestations the medical student needs a profoundly intimate acquaintance. Moreover, true to the growing spirit of teaching universals in the academic side of the university, and applied science in the professional and technical schools, we may ere long do in physiology as we have done in physics and chemistry, and insist on a premedical knowledge of biological principles so that we may utilize the needed time in the medical school for studying the action of those biological laws as manifested in the human organism. Our great obligation in the laboratory of medical physiology is to so train our students in the accurate observation of the multiple manifestations of the activities of the normal human mechanism that, when they enter the department of clinical medicine, they will be able to determine immediately the physiological significance of manifestations indicative of departures from the normal; students so trained would not only instantly recognize morbid conditions but they would, in the great majority of cases, be able to promptly deduce presumptive causal factors, provided, all the problems of the physiological laboratories were studied in the true spirit of investigation.

This unconventional point of view has been presented in general terms by others. Flexner (Bulletin No. 4 p. 59) says: "Physiology and pathology belong, then, in the university, because there is much more to them as sciences than the medical school has time for"; also (p. 60) "Physiology as an element of a liberal education, sweeps the whole horizon impartially, interested in genetic processes, searching for general laws. It works to best advantage with simple forms, . . .with jellyfish and cats in preference to man; an admirable introduction to medical physiology, but not really the same thing." Professor Matthews, of Chicago is quoted by Flexner as believing that both physiology and pathology (presumably, as general sciences) "should follow the example of physics, botany and chemistry and leave the medical faculty and be regarded as subjects prerequisite to the study of medicine" (*ibid* p. 60. Dr. Frederick T. Lewis of the Harvard Medical School takes a different view, a view burdened with some inconsistency. In an article entitled "The Preparation for the Study of Medicine" (Popular Science Monthly, July, 1909, 75, 65) he recommends that the matriculant in medicine should have taken premedical courses in college in zoology, botany, chemistry, physics, psychology, history, philosophy, political economy, English, French, and German. Under zoology he recommends the study of morphology by vertebrate dissection, embryology, histology and microscopic technique; but under the heading of "College Physiology" he says; "Some colleges offer courses in physiology which are dilute presentations of medical school work." "It is wholly undesirable for the medical student to take time from other college work for the sake of such courses." This is remarkable! Why, after recommending morphology, does Dr. Lewis balk at the equally important part of zoology embodied in those manifestations of life constituting physiology? Is not the muscle active as instructive as the muscle dead? Are not the conditions regulating activity as interesting as mere form and position? Or, again, is the study of vertebrate physiology any more of an intrusion on medical work than vertebrate dissection is a substitute for human anatomy? For the sake of sweet reasonableness, let us paraphrase Dr. Lewis' quotation thus: "Our medical schools are offering courses in physiology which, because of their elementary character, belong chiefly to the college," "It is

wholly undesirable for the medical student to take valuable time from his medical course for the sake of courses logically belonging to the academic side." This latter statement is really the text for Dr. Lewis' article (q. v.) for everything except physiology. Why except physiology, or rather that part of physiology which is fundamentally biological in its scope?

To ascertain to what extent the medical school may be duplicating work offered in secondary schools, several high school text-books were examined; and from one (Advanced Physiology and Hygiene, Conn and Budington) the following experiments are selected from the large number given: Experiments on beef heart and valve action; beating heart of frog or turtle; capillary circulation; lacteals in mesentery of cat; ciliary movements in frog; nerve-muscle preparations from gastrocnemius of frog; some characteristics of heart muscle (frog); spinal reflexes (frog); artificial eye; experiments with the "Harvard Apparatus." Are any of these omitted in the medical course?

Furthermore, to ascertain to what extent the subject of physiology is being offered in college, and the adequacy of the college course as a substitute for the biological part of the present course in physiology in the medical school, an inspection was made of the catalogs of about sixty colleges, supplemented by requests for detailed information in a certain proportion of cases. The information gleaned was often unsatisfactory owing to the frequent omission of definite statements as to the actual work done in both the lecture-room and in the laboratory; so it well may be that some colleges giving satisfactory courses are not herein listed. Six colleges, Baylor, Brown, Chicago, Dartmouth, Illinois and Yale give courses in *general* physiology equal or superior to the courses now given in most medical schools. A part of the work at Yale is as follows: "Physiology Chemistry, a course dealing with the chemical side of Physiology. A laboratory fee of fifteen dollars is charged." 12 hrs. 2d half. "Physiology of Nutrition. A course of lectures, recitations, and demonstrations, dealing primarily with the physiology of secretion, digestion, absorption, excretion, metabolism, and other general questions bearing on the subject of animal nutrition." 2 hrs. 2nd half. "Physical and Nervous Physiology. Lectures and recitations (three hours a week) with assigned reading in a text-book, and laboratory work in the mechanics of muscle and nerve, the nervous system, the circulation and respiration." 9 hours 1st half. At the University of Illinois, besides histology, hygiene and research, there is offered in the department of physiology the following: "Major Course.—Physiology of nerve and muscle; circulation; secretion; respiration; digestion; metabolism. Lectures and laboratory. (Full medical credit in physiology)" 2nd semester; 10 hours a week. Prerequisites: General Physics; Chemistry—Inorganic and Organic, Quantitative and Qualitative Analyses, Organic Synthesis; Zoology; Vertebrate, and Comparative Anatomy, Microscopical Technique and General Vertebrate Embryology. So complete are these courses that they are fully accredited in the Medical Departments; a fact which indicates, as the Yale catalog states (p. 143), that these courses in the medical school "are of an essentially biological character." It indicates, furthermore, that we are giving an academic, premedical course in physiology in the medical school instead of the technical course that should be given. What possible excuse can there be for a continuance of this condition? Why devote weeks to biological problems when the time is vitally needed for the training of men to an intimate acquaintance with the problems of human bodily activities? The entire assignment of hours in the department of physiology is none too ample for the acquiring of accurate information concerning the mechanism of the normal human body; and, since departures from the normal constitute the student's future field of investigation, it becomes doubly imperative that his knowledge of the normal be as profound as possible. Time may be spared for no work except the strictly professional, until satisfactory proficiency permits of the assignment of correlated problems. Let no one think that any of this study of the functioning human body may be taken up in physical diagnosis, or in topographical or regional anatomy. The latter is but a necessary preparation for accuracy of work in physiology; and completeness of information in human physiology is the *sine qua non* for success in diagnosis.

Besides the six colleges mentioned above, the following schools give courses which seem to be ample substitutes for the biological work in the medical school: Arkansas, Alabama, Bryn Mawr, Columbia, Cornell, Georgia, Indiana, Kansas, Missouri, Nebraska, Northwestern, Ohio State, Pennsylvania, Princeton, Purdue, Wisconsin and Texas. Again the question may be repeated: With twenty-two schools, at least, giving the biological work in physiology, what excuse can there be for any medical school duplicating the work? Twenty-four other schools offer courses either too elementary, or too specifically correlated with hygiene or with the teaching of physiology in secondary schools, to permit of their being added to the above list. Three schools, Boston University, Johns Hopkins and New York, offer courses in physiology to specials or graduates only. Four schools, Bowdoin, Drake, McGill and Tulane apparently offer no work in physiology. Two, at least, Dartmouth and Leland Stanford Jr. give their course in medical physiology in the academic department, a method quite at variance with the pedagogical principle this paper propounds; while seven, Cincinnati, Harvard, Iowa, Michigan, No. Dakota, Tufts and Utah offer academic physiology in the department of medicine, a method equally at variance with the idea herein

proposed. My premise is that medical education should be strictly technical, whereas the work on the academic side, as Dr. Souchon and others have contended, should be concerned with universals. If this premise be granted, then the medical school has neither the time nor the "atmosphere" for teaching general laws; nor has the academic side the equipment or spirit for teaching specific applications. That such cross teaching is being done today is due chiefly to two causes: (a) identity of subject-matter, and (b) non-recognition of the real difference in purpose of these two departments of the University. It can not be urged too often that the student has a right to the strict technical education that the needs of the community demand. Moreover, as Dr. Lewis urges (ibid p. 74), "In this great pursuit he will not become narrow. He will develop what Dr. James Jackson long ago described as a 'mind liberalized by scientific studies.' If he loses a certain breadth of culture because of specialization, still as Cardinal Newman has said, 'the advantage of the community is nearly in inverse ratio with his own.'"

It is submitted that the following subjects, now a routine part of most physiology courses in medical schools, be relegated to the academic department, where they more properly belong; there to be smelted to such values as may be useful in the development of a broad general course in general physiology: Muscle tissue experiments such as elasticity, extensibility, cohesion, consistency, irritability, contractility, time of contraction, curves, latent periods, phases of shortening and relaxation, isotonic and isometric contractions; variations in strength of stimuli, temperature, and drugs; treppe, contractures, fatigue, curve of work, summation. Electric phenomena, as demarcation current, negative variation, monophasic and diphasic action currents, rheoscopic frog, electrotonus, velocity of nerve impulse, direction of impulse, variations from external factors, refractory period, nature of nerve impulse, trophic phenomena, degeneration and regeneration. Reflex frog. General functions of the spinal cord. Characteristics of heart tissue of the poikilothermous animals. Hematology, capillary circulation, time of circulation, mechanical factors, volume curve. Automaticity of heart, and effect thereon of the salts of Na., K. and Ca. in varying percentages. "All or none" law, refractory period, compensatory pause, normal sequence, cardiac nerves and their action, vasomotor nerves. Principles and mechanics of respiration, chemical and physical changes in respired air and the relation thereto of the diffusion of gases, innervation of respiratory movements, variations from external factors. General physiology of digestion and alimentation, ditto excretion. Physiology of glands. Decerebrate frog, decerebellate pigeon, studies on the semicircular canals of frogs and pigeons and on the saccule and utricle of the *palaemon*. Embryology of the chick and pig; and studies on the growth of chick and pig as affected by variations in alimentation.

These are samples of the subjects now cumbering our routine work in laboratory physiology. No one questions their individual values as items of general physiology, or as topics for assignment in the research laboratories; and it may be admitted that a few may be utilized for purposes of demonstration; but the great mass has no place in a department presumably devoted to the training of men to an efficient knowledge of the functioning *human* body. Such subjects should be taken out of the medical curriculum, and in their stead should be placed studies upon such physiological phenomena as are manifest in, and demonstrable on, the body of a fellow student. To be sure, all known facts cannot thus be studied; some things must be learned by hearsay. The intricate, hidden details will have to be worked out by the specialist in research; his findings will be gratefully accepted by that great body of earnest men who have neither the opportunity nor the economic necessity for such prolonged investigations. However, there is an ample supply of desirable experimental problems; and, since time and privilege are so limited, shall we not rather put our great emphasis on just that data which must inevitably serve as the major premises in all the clinical syllogisms of the practitioner's future?

Why encumber ourselves with the ghosts of the past when once freed from the chains of a halting belief? When the manufacturer of today discovers his plant not running at maximum efficiency, he directs a searching investigation to the end that wornout machines be replaced, antiquated methods be abolished, and systems demonstrably useful be introduced. Shall not the teacher as dispassionately weigh? When he finds himself burdened with excess of demands, unable to accomplish needed results because of the press of conventional tasks, shall he not bravely assume the courage of his convictions and sharpen his scalpel forthwith? The great responsibility of the teaching in the laboratory of physiology is to train the men to observe carefully, record accurately, and deduce logically; and the best data for this supreme work is just that which is of greatest pertinence to the life-work of the physician.

The cases of infectious diseases reported to the Boston Board of Health for the week ending February 24, 1914, are as follows: Diphtheria, 68; scarlatina, 147, of which 14 are non-resident; typhoid fever, 5, of which 2 are non-resident; measles, 61; tuberculosis, 35, of which 2 are non-resident.

The death-rate of the reported deaths for the week was 16.72.

Clinical Department.

THE TREATMENT OF UTERINE CARCINOMA WITH CANCEROUS ASCITIC FLUID.

BY ROBERT M. GREEN, M.D., BOSTON,

AND

FRANK C. W. KONRAD, M.D., BOSTON.

[From the Gynecologic House Clinic of the Boston City Hospital.]

IN February, 1910, the late Dr. Hodenpyl, of New York, first reported[1] his work in the treatment of carcinoma with cancerous ascitic fluid. The somewhat startling success recorded in his early cases aroused great expectations of the possible value of this new therapeutic measure. Unhappily, Dr. Hodenpyl's untimely death prevented the completion of his own experimental researches.

The subject, however, interested many others, and several made similar laboratory and clinical investigations, with varying results. In May, 1911, Risley, of Boston, published[2] a report of his work, done at the Massachusetts General Hospital, under the direction of the Cancer Commission of Harvard University, which may be regarded as the conclusive continuation and completion of Hodenpyl's studies.

Risley described the theory and technic of his procedure, the animal experiments by which he determined the safety of administration of the cancerous fluids, and finally the clinical histories of a series of 45 cases of human carcinoma, which he treated over a considerable period of time with cancerous ascitic fluids from 5 cases. Some of the treatments were with autogenous, the majority with heterogenous fluids.

From a critical and dispassionate study of his results, Risley's conclusion was that "the use of cancerous ascitic fluid from patients in the active or even moderately resistant stages of the disease has no permanent effect in preventing or checking the growth of cancer, or of permanently benefiting the patient. Temporary beneficial effects may be noticed for periods of one to five months, but the course of the disease is in no way permanently retarded. Temporary relief from pain, especially in uterine cancer, and retardation of the growth for periods varying from one to five months may be expected in a small percentage of the cases."

In an appendix, Risley reported in brief a further series of 20 cases similarly treated; and from a further study of them and of his earlier cases concluded that "great symptomatic relief can be obtained in a good percentage of the patients treated, evidenced by relief from pain and improvement in nutrition and general physical condition. Retardation is noticeable and in many cases is prolonged from one to six months."

During the winter following the publication of Risley's article, the present writers had the opportunity of observing several cases of in-operable uterine carcinoma in the gynecologic wards of the Boston City Hospital. In view of the occasional relief from pain and the temporary retardation of growth which Risley had observed in cases of this type, it seemed worth while to make further trial of the method of treatment with cancerous ascitic fluid. An abundance of such fluid was obtained from one of the cases in our series, and with this were made autogenous inoculations in her case, and heterogenous in five other patients. The treatment was continued in some instances over a period of four months. The reporting of this series of cases has been delayed for two years, in order that final results might be recorded, so far as obtainable. For the privilege and opportunity of observing, treating, and reporting these cases, we wish herewith to express our grateful and appreciative acknowledgments to the visiting surgeon and to other members of the staff.

CASE 1. *Gynecological Records,* vol. 165, p. 281. M. G. Aet. 55. A widow. Two previous morcellations for inoperable carcinoma uteri. Patient has had six normal labors at term. Menopause eight years ago. Entered hospital June 5, 1911.

P. E. Well developed, pale and emaciated. Heart and lungs normal. Abdomen presents a sensitive mass, size of a grapefruit, rising above the symphysis, and apparently connected with the uterus. The posterior lip of the cervix is eroded and freely bleeding. Induration of anterior lip extends to and involves the base of bladder. The uterus is enlarged to size described above. Liver enlarged.

Diagnosis. Recurrent general abdominal carcinosis.

This patient remained in hospital 14 weeks. She gradually developed considerable ascites and on Aug. 10, 1911, was tapped and Ov ℥xi of clear greenish fluid withdrawn into sterile flasks. Examination of this fluid showed it to be sterile, with a low specific gravity. Cytologically its centrifuged sediment consisted largely of flat epithelioid cells.

On Aug. 14, 10 cc. of this fluid were injected into the patient's abdominal wall, without local or general reaction. On Aug. 17, 20 cc. were given, and on Aug. 22, 30 cc., both also without reaction.

The patient's condition now became rapidly worse. The ascites recurred, and on Sept. 4 she was tapped of Oxii of similar fluid, which was similarly preserved. The patient died on Sept. 8 without benefit from treatment.

CASE 2. *Gynecological Records,* vol. 167, p. 69. A. D. Aet. 42. Married 15 years. Born in England. Admitted to hospital July 12, 1911.

Obstetrical History. Full term; 6; last in Sept., 1907. Premature, 4. Miscarriage, Feb., 1911. Vaginal discharge, continuous since 1899; slime and blood; medium amount. Pulse, 132; temperature, 100.8°.

Aug. 16, 1911. 5 cc. ascitic fluid into abdominal wall.

Aug. 19, 1911. 10 cc.
Aug. 22, 1911. 15 cc.
Aug. 25, 1911. 15 cc.
Aug. 29, 1911. 15 cc.
Sept. 2, 1911. 20 cc.
Sept. 6, 1911. 20 cc.

Temperature oscillates between 98° and 100° but no change can be noticed as referable to the injections.

Sept. 12, 1911. Vaginal examination: Vault of vagina is occupied by an indurated crater; uterus is enlarged to two fingers above the symphysis. As yet there is little extension into broad ligaments. Recto-vaginal septum is infiltrated with the growth, especially on both sides.

Discharged on request.

Patient seemed much improved in general condition and was relieved of pain.

Case 3. *Gynecological Records,* vol. 167, p. 269. N. W., aet. 55. Married; born in Ireland. Admitted to hospital July 24, 1911.

Previous History. Gyn. Records, vol. 166, p. 193. Diag. carcinoma uteri. Discharged on request. In hospital one week. Not relieved.

Readmitted July 24, 1911.

Obstetrical History. Full term, 0; premature, 4; last 20 years ago at 4 months; vaginal discharge, bloody; medium amount; red clots; continuous for five weeks; pulse, 92; temperature, 100°.

Aug. 19, 1911. Patient is having injections of cancerous ascitic fluid: complains of slightly less pain; temperature slightly elevated.

Aug. 16, 1911. 5 cc. of fluid injected into abdominal wall.

Aug. 19, 1911. 10 cc.

Aug. 22. 1911. 15 cc.

Aug. 23, 1911. Patient passed pieces of tissue by vagina, size of baseball; says she feels much relieved; injections continued.

Aug. 25, 1911. 15 cc.
Aug. 30, 1911. 15 cc
Sept. 2, 1911. 20 cc.
Sept. 6, 1911. 20 cc.

No temperature changes were noted referable to the injections.

Sept. 13, 1911. Patient died at 12 m.

Case 4. *Gynecological Records,* vol. 168, p. 221. C.D., aet. 50; single; born in Ireland. Admitted to hospital Aug. 18, 1911.

History. Patient has flowed almost continuously for nine months, and until two weeks ago. Pain across lower abdomen and in back for two weeks; none before. Has incontinence of urine and pain with micturition for three weeks. Vaginal discharge has never been foul. Has lost considerable weight and has had a cough for four to five months but raises nothing with it. Has often had night sweats.

Defecation, irregular; appetite, poor; bowels, constipated; digestion, poor; pulse, 90; temperature, 100.4°. Urine: alk, 1016; alb. s. t., few squamous and pus cells.

Physical Examination. Well developed but shows loss of weight; very anemic and looks 65 years old. Pulse is regular, of good quality slightly increased tension and not rapid.

Lungs: Negative except for sticky râles at both bases.

Heart: Normal size; systolic murmur over whole precordium and transmitted to axilla. A, P$_r$.

Abdomen: Soft and negative except for indefinite mass on left over sigmoid, apparently connected with the intestine; tenderness over whole lower abdomen on deep pressure.

Vaginal Examination. Stretched, intact introitus; good perineum; mucous membrane is pale; cervix is replaced by an indurated crater mass which fills the vaginal vaults with infiltrations extending on either side of broad ligament; uterus is not made out on account of abdominal rigidity; considerable brown, foul vaginal discharge; recto-vaginal wall also infiltrated; chain of glands in both groins.

Patient was given injections of cancerous ascitic fluid every third day in doses from 10 to 30 cc. from Aug. 20 to Nov. 17. Patient failed steadily and died on Nov. 22.

Case 5. *Gynecological Records,* vol. 169, p. 177. M. A., aet. 39; married. Nativity, Italy.

Sept. 12, 1911. Bleeding from vagina for a long time. Backache. Further history unobtainable.

Physical Examination. W. D. and emaciated. Patchy consolidations in the lungs. Abdominal: mass extending from pelvis three fingers, above symphysis. Vaginal: large ulceration involving entire circumference of upper vagina; cervix almost gone; marked induration throughout pelvis. General condition poor; cachectic. Inoperable carcinoma.

Course. In the hospital 25 days. Temperature irregularly elevated but tending toward the normal.

Sept. 16, 1911. 5 cc. ascitic fluid into abdominal wall. Temp. 99.8°—98.6°.

Oct. 3, 1911. 10 cc. ascitic fluid into abdominal wall. Temp. 98.6°. No reaction.

Oct. 8, 1911. Died suddenly, apparently of embolus.

Case 6. *Gynecological Records,* vol. 169, p, 181. M. B., aet. 55. A widow. Nativity, Boston.

Sept. 13, 1911. Pains; flowing; loss of weight for past 15 years (65 pounds). Menopause six years ago. No flowing till one month previous to entrance.

Physical Examination. W. D. and N. Heart; lungs; abdomen, negative. Vaginal: Cervix is cancerous; uterus is somewhat movable.

Sept. 14, 1911. Vagina not much infiltrated. G. C. poor. Rectal: Stricture of rectum, admitting tip of finger; infiltration of rectal wall. Broad ligaments quite free.

Course. In the hospital 33 days. Temperature irregularly elevated, maximum 102° Sept. 14.

Sept. 16, 1911. 5 cc. ascitic fluid into abdominal wall. Temperature 99°-100°.

Sept. 21, 1911. 7 cc. ascitic fluid into abdominal wall. Temperature 99°.

Sept. 25, 1911. 10 cc. ascitic fluid into abdominal wall. Temperature 99°-99.8°.

Oct. 1, 1911. 18 cc. ascitic fluid into abdominal wall. Temperature 98°-98.8°.

Oct. 5, 1911. 20 cc. ascitic fluid into abdominal wall. Temperature 98°.

Oct. 9, 1911. 25 cc. ascitic fluid into abdominal wall. Temperature 98° -99.2°

Oct. 14, 1911. 30 cc. ascitic fluid into abdominal wall. Temperature 98.4°-99°.

Oct. 16, 1911. Discharged with local condition unchanged, general condition much improved.

CONCLUSIONS.

1. These cases all showed a slight and irregular elevation of temperature, which, however, bore no apparent relation in its oscillations to

the injections of cancerous ascitic fluid, but seemed rather to be due to septic absorption from the ulcerating surface of the cancer.

2. The results obtained correspond with those obtained at the Massachusetts General Hospital. Cases 1, 4, and 5 gave no apparent reaction; Cases 2 and 6, according to their own statement, were relieved of pain and improved in general physical condition; the third case showed an apparent temporary relief of pain, and the tumor was apparently caused to slough, as evidenced by the tissue passed per vagina.

3. Four of the cases died of the disease and apparently without retardation. Two other cases were discharged and lost to observation.

4. That the injections of serum do have a beneficial effect can hardly be doubted, but whether this effect is due simply to a serum isotonic with the blood and acting as a stimulant or whether the reaction is specific, remains still to be proven. Patients with extensive cancer are usually cachectic and ill nourished, and therefore it is easy to conceive that the injection of a highly nutritive fluid, saline and isotonic with the blood, would have a stimulating effect and aid in the improvement of the general condition, and thus probably also the resistance to the inroads of the cancer. The reaction, however, is slight, very temporary and shows slight or no specificity.

REFERENCES.

[1] Hodenpyl: N. Y. Med. Rec., Feb. 26, 1910, p. 359.
[2] Risley: Jour. A. M. A., May 13, 1911, p. 1383.

Reports of Societies.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

REGULAR MEETING AT THE BOSTON MEDICAL LIBRARY, NOV. 20, 1913, D. H. FULLER, M.D., SECRETARY.

DR. GEORGE A. WATERMAN read a paper on

THE RELATIONSHIP BETWEEN EPILEPSY AND MIGRAINE.*

DISCUSSION.

DR. G. S. DERBY: I was very much interested in one of the cases which Dr. Waterman reported, a man whose eyes I had an opportunity to examine. What struck me as most unusual was a permanent scotoma of the hemianopic type, which was present in the upper nasal quadrant of the left and in the upper temporal quadrant of the right eye. The outlines of the fields for white were normal. The colors were somewhat contracted, and showed a marked degree of interlacing. The fundus examination showed nerve-heads which were somewhat blurred and congested. Previously, I had not seen cases of this type, with a permanent scotoma, in connection with migraine or epilepsy, and it seemed to me that it must represent an organic change, probably brain tumor.

DR. P. C. KNAPP said that although Dr. Waterman had collected more evidence in favor of the relation between migraine and epilepsy than he had supposed could be found, he was nevertheless not convinced that the apparent association of the two affections was anything more than a coincidence. The treatises on nervous diseases thirty or forty years ago had much to say of the relation between the two affections; some of the more recent works, notably the new work edited by White and Jelliffe, do not even refer to it. As has already been said the convulsive seizure and the attack of migraine may at times be merely syndromes, due to some morbid process in the brain, and not independent diseases. Hence it is possible that a single underlying disease may produce at one time migraine, at another a convulsion, just as the cortical degeneration of general paralysis may produce an apoplectiform seizure or a convulsion. Although migraine is chiefly a sensory disorder, it may at times be preceded by a motor aura-aphasia or hemiplegia. A permanent hemianopsia or segment defect, due possibly to a hemorrhage, is occasionally seen. Dr. Thomas a few years ago reported several cases and he had seen several himself. Of all common affections of the nervous system, migraine is the one which most frequently shows a familial occurrence and is usually markedly hereditary; in epilepsy, on the contrary, similar heredity is rather rare and a pronounced familial occurrence is almost unknown. He had found migraine, in some large families, fifteen or twenty or more, affecting over fifty per cent. of those investigated, yet in no case was there any trace of epilepsy. Epileptics, of course, often have headaches, especially after a fit, and the headache may occur after an attack of petit mal or an attack in sleep, of which no note has been made. Headache, however, is of extremely common occurrence,—only 10 in 3000 cases investigated by Jelliffe being exempt, but not every headache can be regarded as migraine. Again, epilepsy is usually a progressive disease, often leading to dementia, whereas many cases of migraine recover after the age of fifty, and the disease never leads to mental deterioration. Although he had had the relation between the two affections constantly before his mind, as a result of early reading and the frequent discussions on the subject, he had failed to find in actual practice in the last thirty years any such association, and, above all, he believed that there was no justification for suggesting any such association to the epileptic and still less to the migraine patient.

DR. G. L. WALTON: We have listened to a masterly argument in favor of a case which has always seemed to me inherently weak. The material collected to substantiate this claim has a rather formidable aspect until we remember that the list comprises a comparatively insignificant number of isolated and unusual cases selected from an enormous mass of material consisting otherwise of typical migraine and epilepsy offering no suggestion of resemblance or analogy beyond the superficial one to which I shall shortly refer. Indeed, we are not sure that they are all cases of migraine and epilepsy, whether typical or atypical, and that cases have not been included in which unilateral headache and

*See page 387.

convulsion have arisen from other cause or causes than migraine and epilepsy. I remember very well a case of pituitary tumor in which unilateral sick headaches, with temporary hemianopsia, preceded, for many years, the permanent loss of visual field and the other diagnostic signs of the lesion from which the patient died, and which was confirmed by autopsy. I do not know today whether these early headaches were symptomatic of the tumor, or were migranous and merely a coincidence. Whatever the fact, neither this history nor a hundred such histories would lead the most speculative clinicist to argue a relation between migraine and brain tumor. Nor can I see that the line of reasoning by which it is attempted to draw an analogy between migraine and epilepsy is much sounder.

Again, in estimating the value of the statistics collected to fortify this claim we must not neglect to exercise the control without which such statistics are of no value. Thus, migraine is a very common, and epilepsy a fairly common disease. In looking up the subject of migraine, I found in one hundred healthy persons, seventeen typical cases of migraine, and more of migranous headache. It is not surprising, therefore, that a certain investigator has found forty cases of migraine among the children of some two hundred epileptics. We should expect not far short of forty cases of migraine among the children of two hundred healthy persons taken at random. If the children averaged more than one to an individual (a fact upon which we are not enlightened) we should not be surprised at an even greater proportion of migraine. If these statistics show anything, then, instead of fortifying the contention of the reader, they show that there is no more migraine among the children of epileptics than among the children of other individuals.

A word upon the so-called resemblance between these diseases. This resemblance seems to me a very superficial one, bearing little relation to the fundamental characteristics of the two conditions. The pathognomic features of epilepsy are (1) unconsciousness, (2) the brief duration of the convulsions which are supposed to be the motor analogue of the pain in migraine, (3) the fact that whatever movements are made or whatever psychic equivalents may appear are unconscious and automatic. In migraine, on the other hand, (1) there is no suggestion of unconsciousness, (2) the duration of the pain is one of hours instead of minutes, (3) there are no automatic and unconscious movements, and the psychic equivalent is a conscious one. The main resemblance seems to lie in the fact that both are recurrent with more or less periodicity, and that, in each, an aura is apt to precede the attack. But even when the visual aura, which commonly precedes migraine, precedes epilepsy, it generally is not characterized by scotomata, but is oftener irritative (hallucinatory) in its nature.

The practical question is whether we have enough evidence of the analogy and interchangeability of these diseases to warrant frightening the victim of migraine with the prospect of becoming an epileptic. I can only say that I am decidedly of the opinion that we have not.

DR. E. S. HODSKINS: I have seen only one case in which attacks of migraine were followed by typical seizures. This patient had severe attacks of migraine for several years until finally the migranous attacks would alternate with epileptic convulsions, which finally replaced the migranous attacks altogether. I have also seen one case in which epilepsy and migraine were combined and seemingly the two diseases had no relation to each other. Dr. Knapp has spoken of the small number of epileptics in which he has obtained a history of similar heredity, this has been my experience.

In closing the discussion DR. WATERMAN said: Some years ago Dr. Putnam published an article descriptive of the relationship existing between migrain and supraorbital neuralgia. On account of his well-known interest and wide experience in the diseases under discussion this evening I should like to read his opinion on the question in hand which he sent me together with a note saying he regretted his inability to be present.

"I have seen, as no doubt others have, a number of cases illustrating very strikingly the affirmative side of your proposition with regard to the connection between epilepsy and migraine. I suppose, on the other hand, that when it comes to the pathology of these disorders, no very definite work has been done in the way of establishing a close relationship. For my part I am a believer in the "neuropathic family idea of Féré and others, and I think that the two affections of which you speak do stand closer to each other than most of the others on the neuropathic list, although the difference in respect to relatedness is one mainly of degree.

"Dr. Clark and other men have written interestingly on the subject of myoclonic disorders, some forms of which also bear a close relationship to epilepsy, as no doubt you know.

"One more point has always seemed to me important—namely that I presume we all of us have, in a latent form, lying beneath the surface, as it were, the possibilities and potencies of many forms of inferiority (developmental, autotoxic, etc.) corresponding to all these types. In other words, our organisms are like crystals which one might assume to be capable of fracturing in various different planes but far more easily in certain planes than in others, and although with most of us these fractures may never actually occur, yet any one of them might occur under sufficient stress. There are, in short, I think, many points of less resistance, even in healthy persons, corresponding to the actual defects seen in persons in whom these 'fractures' actually take place. Speaking clinically and practically, I suppose few persons would maintain that migraine, which is so common, ought to be considered as a bar to marriage, while epilepsy should be so considered. What do you think on this point?"

In reply to Dr. Walton's objection to the points of similarity between the two diseases described in the introduction of the paper; I am willing to concede that in the sense of an explosion, meaning a sudden outburst, that an attack of migraine could not perhaps, be considered an explosive phenomenon. He must admit, however, that just as epilepsy is a liberation of motor energy, migraine on its part, represents a liberation of sensory energy. The fact that the aura, when visual, may have different qualities in the two diseases is of course generally known. Just as it is recognized that the character of the paraesthesia of the arm and face differ in the two diseases in the rapidity of onset and the areas involved. These are points of difference between the two diseases, although even here their borderlands may meet as in the occasional instances when the same type of aura may introduce at one time an at-

tack of migraine, and at another time an attack of epilepsy in the same individual.

In general we must recognize that the frequent occurrence of an aura in both diseases indicative of a disturbance in a definite cortical area, does suggest a similarity between the two diseases, as does also the fact that in both neuroses, this aura may occur at times independently of an attack.

That psychic equivalents are not seen in migraine as well as in epilepsy, is of course, not true. Many writers have described psychic symptoms in attacks of migraine, similar to those in patients suffering from epilepsy. Kovalevski has reported cases of migraine in the course of which typical "dämmerzustände" analogous to the epileptic form, made its appearance, and I would call attention to the observations of Zacher, Brackman, Mingzini, Féré and Krafft-Ebing who have described migraine attacks associated with psychoses, as hallucinations, stuporous conditions, impulsive movements and amnesia. Though these instances do not exhibit an absolute loss of consciousness, they do indicate similarity in the alteration of consciousness described.

The fact that Dr. Hodskins has seen three thousand cases of epilepsy and never noted any relationship to migraine in but one of them is interesting, but does not, of course, mean that such relationship may not have existed in some of them, if the cases had been studied, with such an investigation in view. I presume we have had two or three thousand cases of epilepsy at the Massachusetts Hospital in the past ten or fifteen years, yet I doubt if the records would anywhere mention that a relationship to migraine has been observed, and yet only three days ago, having this question in mind, I called back a girl, who was being treated for epilepsy, as she went out, and learned on inquiry that she had suffered from migraine until eighteen, when the attacks stopped and gave place to petit mal, which in turn, developed a few years later into major attacks. How many more such cases might have been found if careful inquiry had been made of other patients is, of course, conjecture. But these points of relationship must be brought out by questioning, they are not presented to one.

Dr. Knapp's contention that the question of relationship between epilepsy and migraine is an old and discarded one, is, I think, unfounded, for although early writers did recognize and discuss it, much attention is paid to it in many articles during the past ten years, several of which have been referred to in the foregoing paper.

While Binswanger, in his recent book on epilepsy gives two pages to it, Flateau in his excellent monograph on migraine, devotes at least ten or twelve pages to the discussion of the subject. The case Dr. Knapp refers to in which a patient with persistent hemianopsia died of a cerebral hemorrhage, does not, I think, have any bearing on the patient referred to in the present paper, in whom the attacks of sick headaches were replaced by headaches and epileptic seizures preceded by scotoma in a young person. Of course, instances of patients suffering from night attacks of epilepsy, waking with morning headache, have been observed by most of us who are familiar with the disease. I do not think, however, that this error would apply to any, but one of the cases reported in the foregoing paper; in Krafft Ebing's case it was recognized that hemicrania did follow, in the morning, the epileptic seizure of the preceding night.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

THIRTIETH ANNUAL MEETING HELD AT WASHINGTON, D.C., MAY 6, 7, 8, 1913.

(Continued from page 322)

DISCUSSION OF DR. PRATT'S AND DR. DALAND'S PAPERS.

DR. MINOR said: As regards the question of tension, Dr. Pratt's remarks on the therapeutic use of water interested me because we all have a number of cases of high tension in which, after a while, you exhaust all your therapeutic resources and you come up against a dead wall. You have tried the nitrites and the iodids, which I still firmly believe in, and dietetic regulation, and hygienic regulation, but when they fail us I believe that warm water will prove our most valuable resource.

Like Dr. Daland, I have not found very much use in nitroglycerine, and I am always looking for something which will meet the needs of these cases of hypertension. They are increasing in our country every day. Owing to the foolishness of our American system of living, they are taking larger toll of people, and we are getting more and more cases in which it is very essential for us to find some means of holding down that pressure. There are some agencies that are reported to have a wonderful effect, and they talk to us a great deal about high frequency currents, and it is unquestionably remarkable how such currents can temporarily greatly reduce blood-pressure, but I have never found anything permanent in their effects. The patient cannot constantly be running to take electricity, but everybody has at his disposition a tub of hot water. As to whether the addition of carbonic acid in the low tension cases is so valuable, I do not know, but in high tension cases I am a firm believer in hot water.

DR. PRATT: Dr. Minor suggested that I should use a greater variation in the temperature of the baths. My object was not the reduction or elevation of the blood-pressure, but the study of the action of the carbon dioxid baths on the blood-pressure at the temperature at which the baths are used in the treatment of heart disease. I have used the iodides in a large number of cases of hypertonia during the past ten years, and I have never been able to convince myself that they produce a fall in the blood-pressure. I do not believe you can reduce the blood pressure in chronic nephritis permanently by any measure, and if it could be done, I am not at all sure that it might not be harmful. Bier pointed out many years ago that the rise in blood-pressure in nephritis possibly was an aid to the functional power of the kidney. This method of treatment should be given a fair trial. I believe it is very important to make observations on the pulse and the effect of each bath on the blood-pressure. In every treatment that has been given I have always insisted that trained attendants should record the blood-pressure before and after the bath and, of course, the temperature and strength of the bath should be carefully recorded. It is said that you can lower the blood-pressure in chronic nephritis by dietetic regulation. In one of my cases of chronic interstitial nephritis, with a strong heart and hypertonia, the effect of a low protein diet was

carefully studied; the food was reduced in protein to less than 40 gms. a day, but at the end of the month there was no definite fall in his blood-pressure. Dr. Folin examined the blood in two of my cases of hypertonia without nephritis, and found that there was no abnormal increase of non-protein nitrogen in the blood. I find that I did not make clear the test that I proposed. Give the patient a bath of full strength at 90 degrees for ten minutes; a fall in the blood-pressure is the sign of a weak heart. Normally, a distinct rise in the blood-pressure results from this bath. If cool carbon dioxide baths 89° to 92° F. produce a fall of blood-pressure they will do harm rather than good.

Dr. Babcock: When you say the temperature is 90°, will you tell me the strength of your bath as to carbon dioxide?

Dr. Pratt: The total strength of the bath is prepared by adding 1000 c.c. hydrochloric acid, and 1000 gms. of sodium bicarbonate to a tub of ordinary size filled with water. Hydrochloric acid injures solid porcelain tubs, as well as those made of iron. The substitution of formic acid for hydrochloric acid, as recommended by Dr. Hinsdale, is a practical and useful improvement in technic.

Dr. Daland: I am not in accord with the view that hypertension is always compensatory. I believe it is always symptomatic, and occasionally compensatory. I agree very heartily with Dr. Elsner when he speaks about the wide distress in the minds of the patients on the announcement of the physician that he is suffering from hypertension, and also agree with him that the influences of sorrow and distress are a cause of this same condition. And I think this announcement of the condition will make him worse. Dr. Babcock dwells very properly upon the enormous influence of rest in these cases as a wonderful factor in many of these cases of high blood-pressure. As to the beneficial influence received by a patient from nitroglycerine in doses of 1-250 grains dry on the tongue, these beneficial results are perhaps to be accounted for on the ground of their psychic effect. Many of these individuals are generally thrown into a high state of nervous tension by the oncoming of an attack, and are directly greatly benefited by regarding this aspect of the case.

Dr. Frank Taylor Fulton, of Providence, R. I., read a paper on

AURICULAR FLUTTER

and reported a case. Auricular flutter is a term applied to a condition which is characterized by an extremely rapid action of the auricle, the rate being usually somewhere between 200 and 330 per minute. It is the result of some pathological impulse formation. The ventricular action may be varied. As a rule, there is always some grade of heart-block. Most commonly the ventricle rate is one-half that of the auricle; it may, however, be one-fourth that of the auricle, or the transmission of the impulse to the ventricle may be very irregular, so that the pulse may closely resemble the pulse of auricular fibrillation. Flutter is closely related to fibrillation, as well as to regular tachycardias of less rapid rate than itself. The condition has been considered to be rare, but the electro-cardiograph has demonstrated that it is probably not very uncommon. It may be detected by the use of the polygraph, although the tracings made by this means are sometimes extremely difficult to interpret. It is not necessarily a permanent condition; the heart action may return to normal and remain so for a long time. It sometimes occurs in paroxysms; the case in point is paroxysmal in type and has been under observation for seven years, during which he has had many attacks, the paroxysms at times lasting for ten or twelve hours or more, but more lately have been less severe and last only for an hour or two. The tracings show the radial and venous pulse during the paroxysm and at the time of transition to the normal rhythm.

Evidence seems to show that the origin of impulse is not from the normal point of origin; some other point than the normal pacemaker has taken on the function of stimulus production. The reasons for this were stated. The first case reported was in a man of 48 suffering with progressive, chronic nephritis with paroxysmal dyspnea and edema. Onset sudden while in the hospital. The flutter lasted for a month, and suddenly became normal. Digitalis in moderate doses of the tincture was given, but without effect. The rate was 143 per minute and there was Cheyne-Stokes' breathing. The patient is still in the hospital. The second case occurred in a man of 54 with gradually increasing edema and dyspnea for a year, due to chronic nephritis and an enlarged heart in decompensation. The pulse-rate was 136 to 138. The auricular waves in the venous tracing were at the rate of 272 per minute. The rate slowed after using digitalis, due to an increased grade of heart-block.

The third case was in a man of 70. There was palpitation following a nervous breakdown. Tracings of these cases were shown by lantern slides.

Dr. Fulton: I emphasize particularly the analysis of the radial curves because I am convinced that many cases with this mechanism can be diagnosticated without any mistake by the radial curves alone. There are other conditions which might bring about somewhat similar appearances, but I think there is no question but that the radial tracing alone is of a great deal of value in making the diagnosis; the reason that it is of value is that cases have been simultaneously studied with the electrocardiograph and the polygraph, so that the tracings which are so clear with the electrocardiograph can also be identified by the use of the other instrument. The possibility of extra-systole must, of course, be kept in mind.

Dr. F. Fremont-Smith, of Washington, read a paper on the

NUTRITIONAL EFFECTS OF INTERMITTENT ALBUMINURIA OF ADOLESCENCE.

Two brothers, aged five and nine, in 1901 developed an acute infection which was eruptive and was termed German measles by two competent physicians, but may have been scarlet fever. During their brief illness both showed albuminuria. It is not known whether they had albumen previously. For eight years both patients continued to present albumen from time to time, and at various hours during the day, with the utmost irregularity as to the hour. The cases were not orthostatic, postural or lordatic. The patients spent the winters each year in a balmy sub-tropical climate and the summers on the Maine coast. The striking fact was that the amount of albumen, the extraordinary irregularity of its occurrence,—one specimen loaded to an alarming extent, the very next absolutely free from serum albumen, regardless of the hour of the day, or of posture, continued un-

interrupted in the moist heat of southern winters or in the chill of the north. No nutritional faults were observed. The conclusion from studies of the literature corroborated the opinion that transitory albuminuria, intermittent or remittent, has little or no effect on the nutrition of the child, but that all such cases should be closely watched.

DR. GUY HINSDALE, of Hot Springs, Virginia, read a paper on

AMERICAN MINERAL WATERS: LATER ASPECTS OF THEIR ANALYSIS, CLASSIFICATION AND THERAPEUTIC PROPERTIES.

Dr. Hinsdale explained and illustrated the new form of stating water analyses, in which values are assigned to the various basic radicles and acid radicles and not to the familiar salts even in hypothetical combination. The latter method has been abandoned by U. S. Government chemists and all determinations are made in parts per million. The different groups of mineral waters and their therapeutic qualities were commented on. The subject of radioactive waters and their occurrence in the United States and in Europe was considered and also the means of artificially rendering a given water radioactive.. This involved the subject of radium and its emanation. The waters of the Yellowstone National Park and of the Hot Springs of Arkansas have been carefully studied and reported as radioactive by Government chemists. The electroscopic method was described and the various units of radioactivity were noted. The preference was given to the "Curie" or "Millicurie" used in France and in the United States. The author visited the water laboratory of the U. S. Department of Agriculture and reported that the chemists of the department were engaged in a study of all the available springs in the country.

DISCUSSION.

DR. A. JACOBI: I would like to know what the radioactive condition of all those wonderful mineral spas means for us. I am only a general practitioner and I want to know what they are good for. What do they claim the physical or theoretic effect is?

DR. W. E. CASSELBERRY, Chicago: I inquire if the author has formed an opinion as to the real efficacy of the radioactive qualities of the springs we mentioned. We have long ascribed the effects to the heat and elimination from the skin in the hot bath. It is well known that the hot springs of Arkansas have effects on certain diseases and that the chemical composition in these waters is almost identical with the composition of the waters of Lake Michigan, but it has been for years a mystery for which no explanation has been given as to what the superior efficacy might be due, aside from the heat and the elimination which seems an inadequate explanation, because the same effects could not be produced by artificially heating the water from Lake Michigan.

DR. KAHLO: This subject has been very extensively investigated in various parts of Europe. I have just returned from there, and took occasion while abroad to investigate this particular subject, and a great deal of importance is attached to this question there, not only at mineral water resorts, where the waters are more or less radioactive, but in the treatment of certain diseases by radium. A good deal of work has been done by Professor His in Berlin, and by Von Noorden and Falta in Vienna. They have used this treatment in a great many diseases, with varying results. I think that there can be no question as to the value of the radium treatment in certain forms of rheumatism and gout. How far these results differ when radium is used, and when the naturally radioactive waters are used, I do not know. They attach great importance to this treatment not only by inhalation, but hypodermically and by the mouth, and it is used very largely in the bath. There it is usually prescribed in the proportion in which radium emanation exists in the Gastein water. This is a subject which will receive more and more attention from the members of our profession in this country, because, while it is comparatively new, efforts are now being made to determine the exact degree of radioactivity of our own waters. The test by the fontactoscope is a very simple one. The technic is not difficult to acquire, and but little allowance need be made for the personal equation in such an investigation.

DR. FREMONT-SMITH, Washington: I beg to ask for information from Dr. Hinsdale whether there are any popular spas in Europe which are not radioactive. Also I should like to ask what is the grade of radio-activity of the springs of Hot Springs, Va.

DR. HINSDALE: Dr. Jacobi inquires about what value radioactivity would have for us in the treatment of disease. I have had no experience with treatment of patients by distinctly radioactive measures although the Germans have published a great deal about it, and the work of Klemperer is probably the most complete exposition of it. They all seem to claim great benefit in the treatment of rheumatism and gout and chronic affections of that type. We, I think, in this country have not received data enough to know what waters are radioactive. The government has not yet announced what waters of Virginia are radioactive. They have been tested by the government experts, and I suppose we will hear more about that later, but I am in no position yet to make any publication about it. There is a very long list of European spas that are found to be radioactive, graded according to measured scales. We will probably find that most all the springs of Europe are such. As far as the proportional assignment of benefit to the radioactivity and to other features of the spa treatment, I may say that at Aix they do not claim that radioactivity is the principal means by which benefit is derived. They attribute a great deal of benefit to the moisture and to the heat and to the manipulations which are given at Aix. Of course, they do assert that the radioactivity helps to some extent in the treatment of these cases. They are not dogmatic in their claims. I wish that I could give you more definite information about the radio-active springs of this country, but we are not in a position to make any definite statement about it, perhaps next year we may do so.

DR. ROBERT H. BABCOCK, of Chicago, read a paper on the

CAUSE OF BRONCHIAL ASTHMA.

He said that in every case of asthma one should search for some focus of chronic infection in the nasal accessory sinuses, in a chronic hyperplastic ethmoiditis, or in some closed cavity in any other part of the body. If found, advise its removal by surgical interference. If the absorption of a foreign protein can be presented in this manner, it is likely that the asthmatic seizures will be prevented or greatly ameliorated. In cases of asthma traceable to

animal or vegetable emanations or to some article of food to which the person has become sensitized, we can do nothing more than avoid exposure to the exciting cause. Dr. Babcock with other investigators concludes that bronchial asthma is a manifestation of anaphylaxis, or a protein sensitization or hypersensitiveness on the part of the animal to protein introduced into the system either by way of the alimentary canal or parenterally, *i.e.* some other channel which permits absorption.

DR. W. E. CASSELBERRY, Chicago, read a paper on

THE RECOGNITION OF EARLY CHANGES IN THE LARYNX IN TUBERCULOSIS.

The first definite change provoked by the bacillus in the larynx is an infiltration of the mucosa and submucosa, the tubercles being deposited near enough to the surface to change its aspect. The infiltrations fall into three groups:

1. Mammillated hyperplasia, by reason of the globular form of tubercles.

2. Granulomatous and verrucous formations, which may make an early appearance, although usually they appear only after ulceration.

3. Incipient edematous hyperplasia, rarely gross edema.

Favorite sites stamp upon the lesions additional distinctive marks, one of the most characteristic of which, a furrow in the vocal angle, has received little notice. Mammillated hyperplasia, commencing at the base of the vocal process and marked by a furrow in the vocal angle, is the most distinctive and one of the earliest signs. Interarytenoid hyperplasia, alone, is indistinguishable from non-tuberculous forms. But both together solve the problem of differentiating tuberculous laryngitis, from simple laryngitis in a tuberculous subject. This question concerns mostly the hopefully resistant type in which, if recognized early, the results of treatment justify every effort and any sacrifice. Somewhat later a bilateral development of the furrow in the vocal angle leads to an appearance or squaring of the semicircle of the posterior commissure, which is strikingly characteristic. Thus a diagnosis from the laryngeal image alone is usually, albeit not invariably, possible, every additional test being exceptionally required to remove all doubt.

DISCUSSION.

DR. C. L. MINOR: I am satisfied that too many neglect to examine the larynx of patients. Every man who has examined the lungs has not done so satisfactorily until he has also examined the nose and larynx.

DR. C. C. BROWNING: We have not completed the examination of the respiratory tract of a tuberculous patient until the nose and throat have been thoroughly examined. The larynx should be carefully watched, especially during the beginning of the use of tuberculin. Frequently changes will be brought about in the larynx before they would be noticeable in the lung, or by the temperature or other signs which we are likely to look for in the detection of tuberculosis, and if the dose is repeated too frequently or is too large we may bring about disastrous results in the larynx, when by the careful watching and graduating the doses by the condition of the larynx we may bring about an excellent result. I am satisfied that the universal recommendation, without further consideration, that you should put all patients out of doors and unprotected may have its exceptions. Not that the general principle does not hold good, but we must individualize in our cases.

DR. KINGHORN: I would like to ask Dr. Casselberry as to treatment. I have often been doubtful whether to put the patient's voice at absolute rest, suspecting a tuberculous condition, or whether simply a modified rest of the voice. I would like to ask whether he would put the patient at absolute rest.

DR. CASSELBERRY: You may have noticed that the effort in the paper has been to systematize the early lesions of tuberculosis of the larynx and to formulate a rule of thought as an aid to their recognition. The lesions are so diverse that I felt, unless one could reduce their presentation as well as recognition to order, that nothing would be gained. Examination of the larynx is rendered comparatively easy by a one per cent. cocaine solution sprayed sparingly into the fauces, not mopped on with cotton, and it is harmless if one tells them to spit out, and not to swallow immediately afterward. Furthermore, for those who are wearing glasses the substitution of an ordinary small, well-focussed brilliant head light, which eliminates one angle of reflection from the course of the light, has the advantage of disclosing small lesions in the larynx with less blurring of outline.

In regard to rest for the voice in the treatment. Yes, provided it be tuberculosis of the larynx and not merely laryngitis in a tuberculous subject, he should have perfect rest if he will take it. Absolute rest to the voice is one of the first principles of the treatment, but one must know that it is tuberculosis of the larynx before feeling justified in subjecting a patient to such a trial and inconvenience.

(To be continued.)

Book Reviews.

The Elements of Bandaging and the Treatment of Fractures and Dislocations. By WILLIAM RANKIN, M.A., M.B., Ch.B. With 68 original illustrations. London: Henry Frowde, and Hodder and Stoughton. 1913.

This small volume in the series of Oxford Medical Manuals is based on the author's demonstrations to medical students preparing for the practical portion of their final examination. One may well cavil with its opening statement that "the fine art of bandaging is no longer a necessity." Indeed, the section on bandaging, constituting one-fifth of the book, teaches little but the spiral reverse, figure of eight, and spica. The section on fractures, comprising three-fifths of the book, is equally meagre for so important a subject, though the essence of its teaching is excellent. The section on dislocations is correspondingly brief. The figures throughout are excellent. Despite certain merits, the book as a whole is one which for obvious reasons is not to be recommended. No doctor ought to undertake the treatment of fractures or dislocations who does not know more about them and about bandaging than is here set down.

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THE INTERPRETATION AND MANAGEMENT OF LOW BLOOD-PRESSURE.

MEDICAL literature at the present time teems with references to high blood-pressure, its significance, and measures more or less efficient in causing its reduction. Of course we meet with numerous incidental allusions to low blood-pressure also; but it may safely be said that there is decidedly less definite information regarding it. One of the most illuminating contributions which has as yet been made to our knowledge of the subject, and one which is especially worthy of note as being based on practical observation and experience, is to be found in an address by Dr. Edward E. Cornwall of Brooklyn, N. Y., at the sixteenth annual meeting of the Associated Physicians of Long Island. The variations in blood-pressure found in different individuals, he very properly states, are so great, both in apparent health and in conditions of compensation of the circulation necessitated by disease, that it is impossible to draw rigid lines and say that pressure below these lines is abnormally low. Only such a general statement as the following can be made, and this must be subject to exceptions: For a young adult a systolic pressure of 100 mm. of mercury may be low; for a person of middle age, one of 110; for an elderly person, one of 120; for a person with sclerosis or spasm of arteries supplying a vital region, one of 140; for a person with advanced interstitial nephritis, one of 180. These, as mentioned, are systolic records, and such as are generally taken as the measure of the blood-pressure; but if our observations are confined to the systolic record alone, their clinical value will be small, and we will frequently find the inferences drawn from them contradicted by other evidence. The diastolic pressure is fully as important as the systolic, and the author therefore considers it essential to consider the records of the two together in their numerical relations, that is, the difference between them and their place in the pressure scale; which affords a very useful, though only partial, index of the degree of efficiency of the circulation. The difference between the systolic and diastolic pressure tells us the fall in the circulation between the heart and the arterioles, and is analogous to what in hydrostatics is termed a "head of water." This fall is the pulse-pressure. There is reason to suppose that there is a particular place in the pressure scale for each individual and each particular condition where a given pulse-pressure, other things being equal, will produce the fullest circulation, and one at the same time attended with the greatest circulatory flexibility and reserve power; also that pulse pressures placed above or below this ideal point in the scale, in order to produce an adequate circulation, must ordinarily increase in magnitude, that is, take on an overload, and that such an overload means more or less diminution in the flexibility of the circulation and in the reserve power of the heart. If the diastolic pressure fails to fall in correspondence with a falling systolic pressure, thereby permitting the pulse-pressure to become unduly small, or if, on the other hand, the diastolic pressure falls so low, relatively, that the pulse-pressure takes on a large overload, clinical symptoms of circulatory insufficiency may appear.

Low blood-pressure, although frequently pointing to myocardial degeneration, Cornwall believes more often signifies vasomotor relaxation or paralysis due to toxemias or to nervous and reflex conditions. In uncomplicated cases of myocardial degeneration an extra demand on the circulation may increase the pulse-pressure disproportionately, and the failure of the systolic pressure to rise sufficiently to enable the pulse-pressure to assume the requisite overload may be a measure of the extent of the degeneration. In cases of such degeneration accompanied by arteriosclerosis or nephritis, which naturally raise the diastolic pressure, there is regularly an increase of the systolic pressure,

and an overload in the pulse-pressure, so long as the reserve power of the heart holds out; but when this power, already encroached upon by the myocardial degeneration, is no longer sufficient to support the overload, the circulation fails with the falling systolic pressure. In instances of myocardial degeneration with coexisting conditions which require a compensatory high pressure, the appearance of low blood-pressure is to be looked upon as a bad prognostic sign. Very many chronic toxemias of intestinal origin, as is well known, are associated with conditions which produce high blood-pressure, such as arteriosclerosis and nephritis, but many others are attended with low pressure. In the latter class of cases a nonputrefactive diet is found to raise the pressure, while in the former a diet of this character constitutes a most valuable means of lowering the high blood-pressure. In most acute infections the systolic pressure is low, and the diastolic also, unless there is an obstruction in the periphery. In lobar pneumonia, however, lowering of the blood-pressure to any considerable degree occurs less commonly than in most acute infectious diseases. Ordinarily it is lowered somewhat at the onset, and again at the crisis. In cases of apparent primary vasomotor paralysis and in cases with pronounced myocardial failure, which are not uncommon, the blood-pressure is likely to be very low. In 27 out of 30 cases of pneumonia, all of which terminated favorably, the systolic pressure fell below the pulse-rate; thus contradicting the assertion of Gibson and Hare, that when this occurrence is noted in pneumonia, the prognosis is bad. In pericarditis, as in myocarditis, there is regularly diminution of the systolic force and a lowered systolic pressure, while in compensated valvular disease the blood-pressure is usually normal, except in the case of aortic incompetence, where the systolic pressure is regularly high and the diastolic regularly low. When there is pronounced loss of compensation in valvular disease the blood-pressure falls. In chronic wasting diseases generally the pressure is low, and the same has been observed in cases of excessive tobacco smoking. Surgical shock is recognized as an effective cause of low blood-pressure.

The diastolic pressure appears to be more stable than the systolic, and to show less often marked variations from its normal without definite pathological cause. It indicates the peripheral resistance, which in many instances is determined by permanent pathological conditions. Vasodilator drugs may improve the circulation by increasing the pulse-pressure, while cardiac-depressant drugs may lower the diastolic pressure by diminishing the systolic force and calling for a pulse-pressure overload. In the interpretation of blood-pressure findings, considerable allowance may have to be made for the neurotic factor in the patient and the personal factor in the observer, and the clinician must constantly guard against being misled by these findings, and especially against ascribing too much importance to them when unsupported by other evidences of disease. In the treatment of low blood-pressure removal of the cause, if possible, is, of course, the first duty. If the cause is a chronic toxemia, it can very often be removed or lessened, and this is particularly true of intestinal toxemias. An essential element in the treatment of low pressure is rest, and in persistent low pressure following any of the acute infections, prolonged rest in bed is necessary. If there are definite signs of circulatory insufficiency, cardiac stimulants may be called for, and of the drugs of this class Cornwall has found strychnine, stropanthus and caffeine most generally useful. Digitalis, which may prove of great service in cases with low diastolic pressure and a fairly healthy myocardium, is contraindicated in those with myocardial degeneration and a relatively high diastolic pressure. In cases with sudden severe falling of the diastolic pressure due to toxemic vasomotor dilatation, adrenalin and pituitrin would seem suitable agents to employ. When there is low blood-pressure as the result of severe hemorrhage, the rapid introduction into the circulation of normal saline solution, as well as elevation of the lower part of the body, is called for. In some cases with a relatively high diastolic pressure and a small pulse-pressure, nitroglycerin may prove useful by enlarging the latter, but in cases in which the diastolic pressure is low this drug is absolutely contraindicated.

MEDICAL LEGISLATION. THE REGISTRATION OF NURSES.

THERE is at present pending before the Massachusetts General Court a House bill (No. 1186) relative to the registration of nurses in

this Commonwealth. This bill provides for an amendment of the act of 1910 by substituting for one of its sections a new section as follows:—

"Applicants for registration under this section, who shall furnish the board with satisfactory proof that they are twenty-one years of age or over, of good moral character, and that they have received a certificate of graduation from a training school for nurses, giving at least two years' training in a hospital, and considered efficient by the board, shall, upon payment of a fee of five dollars, be examined and if found qualified, shall be registered and authorized to use the title 'registered nurse' and shall receive a certificate thereof from the board signed by its chairman and secretary.

"An applicant who fails to pass an examination satisfactory to the board, and is therefore refused registration, shall be entitled, within one year after such refusal, to a re-examination at a meeting of the board, called for the examination of applicants, without the payment of an additional fee. The said board may, after a hearing, by vote of a majority of its members, annul the registration and cancel the certificate of any nurse; and, without any hearing, may annul the registration and cancel the certificate of a nurse who has been found guilty of a crime or misdemeanor.

"The board shall have authority under this section to investigate at any time the training schools for nurses in this Commonwealth for the purpose of determining their fitness and efficiency, as shown by their general equipment, by the character, the methods, and the extent of instruction given therein.

"For the purpose of such investigation, the board may employ a person legally entitled to 'R. N.,' and who is a graduate of a training school for nurses connected with a hospital of at least fifty beds, and which gives a course of instruction in the art of nursing, covering a period of not less than two years."

The essential purpose of this amendment is to give the Board of Registration of Nurses authority to inspect the training-schools whose graduates, by virtue of their diploma, seek registration by the board. A previous attempt to secure legislation to this effect was made by the Massachusetts State Nurses' Association in 1913; but the measure then introduced was defeated in committee by opponents who objected that it would place too much power in the hands of the board. As a matter of fact, it does not seem that this argument is of importance, since the board is an appointive body from which one member is retired each year, and its personnel could readily be changed, if it showed any tendency to arbitrary abuse of authority.

The need and desirability of such inspection are obvious, for without it there can be no standard of training on the adequate basis of which a diploma may be accepted as evidence of fitness. The proponents of the bill have pertinently pointed out that similar training-school inspection has proved of value and success in New York and Illinois, where it has already been adopted. Such examples are important arguments in its favor.

The public needs protection against incompetent nurses as well as against incompetent physicians. The establishment of nurses' registration was a recognition of this fact. But that protection is not adequate without some means of assuring the quality of training received by the nurse who is a candidate for registration. This assurance is provided by the present amendment, and the inspection thus established would not only protect the public against the graduates of inferior schools, but would inevitably raise and make uniform the standards of nurses' training throughout the state.

The hearing for this bill is to be at the State House on Tuesday, March 10, before the Committee on Public Health. It is to be hoped that physicians who recognize its importance, and who are themselves vitally concerned in the maintenance of reliable training for nurses, will be present to speak in explanation of the bill and to advocate its favorable report and passage.

MEDICAL LEGISLATION. THE TUBERCULOSIS PROBLEM.

ON Tuesday of next week, March 10, at 10.30 a.m., there will come up for hearing at the State House before the Committee on Public Health the legislative bills introduced by the Recess Committee on Tuberculosis. These bills, embodying the recommendations of the full committee, include those from House 922 to 931 inclusive. At the same time hearing will be given to certain other bills, House 530 to 533, which have been introduced by a minority of one of the committee. In addition to these, House Bill 1828, not introduced by the Recess Committee on Tuberculosis, will also be heard. These latter bills, House 530-533 and 1828, which include a plan for the reorganization of the State Board of Health on the basis of a paid board of five members, the establishment of a

commission on tuberculosis, and the establishment of a definite policy for the treatment of tuberculosis, we believe to be unnecessary and unwise.

The policy of this JOURNAL in regard to the proposed reorganization of the State Board of Health has already been clearly stated. We are therefore opposed to any proposed legislation which departs from this policy. We are also opposed to any bills which will in any way hamper the centralization of authority in tuberculosis work, which is so desirable and which is strongly advocated by the Recess Committee.

The bills advocated by the full Recess Committee, House Bills 922-931, seem on the whole commendable and deserving of passage.

House 922, An Act to Establish a Department of Diseases Dangerous to the Public Health, is a commendable bill but unnecessary, as the State Board of Health, we believe, already has the power to establish such a department.

House 923, An Act Relative to Inspection by the State Board of Health of all Institutions Caring for Diseases Dangerous to Public Health; and House 924, An Act Relative to Supervision of Local Boards of Health by the State Board of Health, we believe to be wise and desirable.

House 925, An Act to Provide for the Care and Treatment of Incorrigible Tuberculous Patients in a Separate Institution, we believe should not be passed at the present time. The principle embodied in this bill is a commendable one, but further investigation should be made as to the advisability of caring for such incorrigible patients in an institution or institutions already existing, before the state is called upon to build a new and separate hospital for such patients.

House 926, An Act Which Allows Towns and Cities to Incur Indebtedness Outside Their Debt Limit for the Purpose of Building Hospitals, will help certain cities and towns to build local tuberculosis hospitals, which at present they are finding it difficult to do.

House 927, An Act to Allow the State Board of Health to Standardize Tuberculosis Dispensaries, is an excellent one and should by all means be passed.

House 928 defines the powers and duties of the State Board of Health in regard to the ventilation of school buildings in the Commonwealth.

House 929 repeals an existing law, that no hospital shall be established within 100 rods of an inhabited dwelling house in any adjoining city or town without the consent of such city or town. The bill is worthy of passage subject to the supervision of the State Board of Health.

House 930 is an Act Requiring the Trustees of Hospitals for Consumptives to Reserve the Westfield State Sanatorium for Women and Children Only. We believe that this question should be left to this board of trustees to decide.

House 931, An Act Relative to the Removal of Certain Persons Infected with Tuberculosis, will be of great assistance to local boards of health throughout the Commonwealth in caring for that most dangerous class,—the alcoholic and incorrigible advanced consumptive.

These bills, 922-931 inclusive, which have been briefly commented on above, represent the result of a summer of very hard work by the Recess Committee on Tuberculosis of the House of Representatives after about 40 public hearings. They bear on important phases of the health problem in this state, and should receive serious consideration and advocacy by the medical profession as well as by the legislature.

JULES CLARATIE AND THE MEDICAL PROFESSION.

BY the recent death of this great French author and journalist, the medical profession has lost one of its warm admirers and faithful portrayers in fiction.

One of the just criticisms of many modern novelists that the physician is entitled to make, is of the great liberties taken with medical facts and the ignorance displayed, almost childish at times, in dealing with medical subjects. Too much realism and practical medicine in fiction is surely to be deprecated by none more than the physician. Such statements as are made concerning well-known medical facts should, however, be accurate as far as possible for the day and generation in which they were made.

It is refreshing then to think of this great writer, a good friend of medicine, and of his works of fiction concerned with medicine. Among these, "Jean Mornas," and the "Amours d'un Interne" are perhaps the most notable. In the latter novel, according to an article in *La Chronique Médicale*, is shown a

profound knowledge of things medical and scientific. Claratie writes of hysteria especially in a manner showing deep knowledge of this subject. Many of the most unusual cases of this interesting and many-sided affection, he had the opportunity of observing at la Salpêtrière. The sick themselves, the internes, the wards and laboratories of hospitals were all described with wonderful accuracy, but not with pedantry.

When the tired physician seeks relaxation in the form of a novel, and literally has his teeth set on edge by some bizarre or impossible statement concerning medical matters, he will certainly long for the accuracy and care used by this great author in all subjects pertaining to medicine.

SCHOOL DENTAL CLINICS.

THE recently published proceedings of the meeting of the International Dental Federation at The Hague in 1913, show that there are in Germany over 200 school dental clinics; in Sweden, 40; in Norway, 10. Dr. Jessen, of Strassburg, chairman of the congress, announced the following outline of rules of dental care and conservative early treatment.

"From the age of two and one-half years it is desirable that children's teeth be inspected every six months in order to treat the deciduous teeth before they ache, and allow the children to enter the public schools with healthy mouths. It is desirable that every child from this age have his own toothbrush and be practised in its use. The mouths of children who come at an older age to the school clinics should be treated as much as possible in a conservative way. Decayed teeth which cannot be filled must be extracted. Dry roots of deciduous teeth must be left in the mouth till the permanent teeth appear. This will preserve the shape of the jaw. Decayed crowns with dry roots should be cut off and the roots filed smooth. The six-year molars are to be saved if possible until the age of twelve and must be extracted only when they cannot longer be saved or when there is not sufficient room in the mouth. Each child is to be treated individually with methods suited to his age, constitution and character."

ALPHONSE BERTILLON.

ALPHONSE BERTILLON, who did most to elaborate the science of anthropometry, from which he evolved in 1879 a system of criminal identification, died February 13, last. By his work the records of municipal police departments were improved far beyond those of their courts. The police of great cities now regularly exchange the Bertillon measurements of convicted men, and can thus recognize criminals of national and oftentimes of international disrepute. Bertillon was himself for thirty years the head of the Paris Bureau of Identification.

This remarkable man has been considered the inventor of the finger print method of identification, but erroneously. When Mr. William A. Pinkerton was in China he found that the merchants impress their thumbs rather than write their signatures on documents and business agreements, and have ever with them for this purpose a cake of ink. And this, it seems, has been the custom for centuries, from time immemorial, indeed. From China the use of the thumb print spread to India, whence the English introduced it to London. Francis Galton published his *Finger Prints* in 1892 and soon after his *Index of Finger Prints*. He computed that the chance of a finger print of an individual being duplicated by that of another is one in sixty-four billions. And he first reduced finger printing to a system and proposed it to Bertillon. The latter was for a long time skeptical as to its utility, preferring his own system of measurements. It is now a part of the Bertillon system. It was one of the most pitiful incidents of the Dreyfus trial that Bertillon, who had written several works on identification through handwriting, gave an expert opinion which went far toward sending the unfortunate soldier to Devil's Island. The question of the treason of Dreyfus hinged on the identification of letters written by him with that of the infamous bordereau. Bertillon concluded this document and these letters to have been written by the one person. And he so testified, as one of three experts engaged by the state, two of whom declared against Dreyfus, the third maintaining that the soldier had had nothing to do with the bordereau. With the latter two experts engaged by the defense coincided. The verdict at that trial doomed Dreyfus to imprisonment for life in the pestilential tropics. Five years after, through the efforts of Zola, Picquart and others he was returned to Paris, where his case was reversed in the manner with which all the world is now familiar.

MEDICAL NOTES.

LEGALITY OF VASECTOMY.—Report from Fort Madison, Iowa, on Feb. 19, states that a test case is to be made in the instance of a prisoner in the local penitentiary who protests against the operation of vasectomy which was to have been performed on him under the new law for the sterilization of criminals and insane. The convict will take legal procedure to resist its performance, and his fellow-prisoners are said to have raised from their earnings a sufficient sum to defray the costs of the trial. Despite one's realization of the undesirability of procreation among the unfit, one cannot help sympathizing with the attitude of the convicts.

SCARLET-FEVER AT UNIVERSITY OF ILLINOIS.—Report from Champaign, Ill., on Feb. 19 states that scarlet-fever is epidemic among students at the University of Illinois. There have already been a number of cases and two deaths of the disease.

ERADICATION OF MALARIA AND TYPHOID.—On Feb. 21, Senator Ransdell introduced into the national Senate a bill carrying an appropriation of $500,000 for the study and eradication of malaria and typhoid fever in the United States.

BOSTON AND NEW ENGLAND.

BIRTH OF TRIPLETS.—Report from Chatham, Mass., on Feb. 20, announces the birth to Mrs. Edward L. Clark, of that town, of triplets, two boys and a girl, weighing respectively 6, 6¼, and 7 pounds.

SALE OF MORPHIA ON TELEPHONE ORDER.—In the Boston municipal court on Feb. 20, Judge Murray ruled that it is illegal to sell cocaine, morphine, or opium, on an order given by a physician over the telephone, and fined a drug clerk $25 for so doing. The statute reads "upon the written prescription or order of a physician," and does not include on oral order given directly or telephoned.

HOSPITAL BEQUESTS.—The will of the late Mrs. William A. Abbe, of New Bedford, Mass., which was filed in that city on Feb. 21, contains a bequest of $50,000 to the St. Luke's Hospital of New Bedford, and one of $5000 to the Boston Lying-in Hospital.

NEW YORK.

SMALLPOX AND VACCINATION.—Health Commissioner Biggs recently addressed a letter to the health officers of the state in reference to smallpox. During the year 1913, he says, there were 823 cases of the disease in New York state. In the large cities of New York, Buffalo and Rochester, with a population of over 6,000,000, where the law compelling the exclusion of unvaccinated children from school has been rigidly enforced, there have been only 39 cases—mostly imported. Smallpox now exists in epidemic form in Niagara Falls, where there is a widespread sentiment against vaccination. The cases in this epidemic have been of a mild type, but in unvaccinated communities there is every possibility of the epidemic becoming far more serious. From Jan. 1 to Jan. 27 there were reported 154 cases at Niagara Falls and 15 cases at other places in Niagara County; also a number of cases in Chautauqua, Erie, Herkimer and Montgomery counties.

TWO NEW APPOINTMENTS. — Commissioner Biggs has appointed Dr. H. L. K. Shaw of Albany director of the division of child hygiene in the State Health Department. Dr. Shaw has been clinical professor of diseases of children in the Albany Medical College, and is at present chairman of the pediatrics section of the American Association for the Study of Infant Mortality. Commissioner Biggs has also appointed Dr. Augustus B. Baldwin of New York director of the division of laboratories and research. Dr. Baldwin is a graduate of the Massachusetts Institute of Technology and of the medical department of Columbia University. At the latter school he has held a number of positions, and from 1909 to 1913 was adjunct professor of bacteriology.

OUTBREAKS OF TYPHOID.—The State Health Department reports recent outbreaks of typhoid fever at Ellicottville, Cattaraugus County; Walden, Orange County; and Fishkill, Duchess County. The outbreak at Fishkill, it states, is a striking illustration of the quick spread of infection from one unsuspected source. An unrecognized case of typhoid, the infection of a few bottles of milk, resulting in four cases, the infection of a well by one of these cases, and then eight cases among the few persons who used the water of this well, giving a probable

total, exclusive of the first case, of 18 in a village of 500 inhabitants—all present a striking chain of evidence which would seem to leave no doubt as to the origin and development of this outbreak.

A CENTENARIAN.—Theodore Harris of Camden, N. J., died on February 13, at the alleged age of 110 years. He was a native of Maryland and served in the navy throughout the Civil War, and the records of the Navy Department appear to support the correctness of his great age, as they give the date of his birth as May 20, 1813.

ORTHOPEDIC DISPENSARY AND HOSPITAL.—The recently published forty-sixth year book of the New York Orthopedic Dispensary and Hospital, records the work of that institution for the calendar year 1913. During this period 7490 patients were treated at the dispensary, of whom 2506 were new cases. At the hospital, 510 operations were performed on 444 patients. The patients made 30,366 visits to the dispensary, and 11,022 visits were made by nurses to patients in their homes. A year ago an appeal was made to the public for $1,000,000 to erect, equip, and maintain a new hospital building. Of this sum, $545,000 have already been raised. A site has been selected and purchased, plans are in preparation, and the work of construction will be begun as soon as the remainder of the sum can be secured.

COST OF CARE OF ALIENS.—A report of the hospital investigating board, submitted on Feb. 19 to the New York board of estimate, states that the city expends annually $1,000,000 for the hospital and almshouse care of aliens, many of whom have entered this country within five years, and were diseased on admission.

OFFICERS, NEW YORK NEUROLOGICAL SOCIETY.—At the last regular meeting of the New York Neurological Society, the following officers were elected.

President, Dr. Smith Ely Jelliffe; first vice-president, Dr. E. G. Zabriskie; second vice-president, Dr. F. Kennedy; corresponding secretary, Dr. J. Ramsay Hunt; recording secretary and treasurer, Dr. C. E. Atwood; councillors, Drs. L. P. Clark, A. S. Taylor, F. Tilney, C. L. Dana, and I. Abrahamson.

Current Literature

MEDICAL RECORD.

FEBRUARY 7, 1914.

1. POLK, W. M. *Treatment of Retrodisplacements of the Uterus.*
2. CLARK, L. P. *Some Observations upon the Etiology of Mental Torticollis.*
3. CARTER, W. W. *Operations for the Correction of Deformities of the Nose.*
4. JEWETT, D. B. *Hypophyseal Disease as Related to Diabetes Insipidus; with Report of Two Cases.*
5. GILMOUR, A. J. *A Case of Scleroderma.*
6. WILLIAMS, E. H. *The Drug-Habit Menace in the South.*
7. BERNSTEIN, E. P. *Brain Abscess Due to the Bacillus Coli Communis.*

FEBRUARY 14, 1914.

1. SCHMIDT, A. *Some Remarks Concerning Chronic Diarrhea and Constipation.*
2. MARSHALL, H. W. *Stiff and Painful Shoulders.*
3. NICHOLS, J. B. *Metabolism and Vitality.*
4. *BERLIN, W. C. K. *Bacteriaemia, Infections and Bright's Disease.*
5. BUGBEE, H. G. *Further Observations on the Use of the High Frequency Spark for the Relief of Prostatic Obstruction in Selected Cases.*
6. HAGEMANN, J. A. *The Upper Respiratory Mucous Membranes as Emunctories.*
7. OCH, B. F. *Dermatoses Due to Toxemia.*

4. Berlin invites discussion and investigation of some new ideas on the causation of Bright's disease. Nephritis, he says, is always of bacterial origin, and cultures taken from fresh urine will give abundant colonies of micro-organisms. The toxemias do not cause nephritis, although they do increase the blood-pressure. When acute inflammation of the kidney subsides it leaves the renal tissue damaged and degenerative changes, *i.e.* chronic nephritis, begin at once. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

FEBRUARY 7, 1914.

1. DACOSTA, J. C. *Personal Experience with Tumors of the Carotid Body.*
2. PEDERSEN, V. C. *Neoplasm of the Bladder.*
3. *KEMP, R. C., AND VANDER VEER, A., JR. *An Inflating Gastroscope and Duodenoscope.*
4. CHAMBERLAIN, W. P. *The Etiology of Oriental Beriberi.*
5. EHRENREICH, S. G. *A Case of Auricular Fibrillation in a Child.*
6. ROSENOW, E. C. *Lesions Produced by Various Streptococci; Endocarditis and Rheumatism.*
7. DABNEY, V. *Herpes Zoster Oticus.*
8. TAUNEBAUM, S. A. *Psychanalysis.*
9. SEELYE, H. H. *Cutaneous Epitheliomata Cured by Sunlight.*

3. Kemp and Vander Veer describe the direct pneumatic gastroscope which they use in stomach cases. They find it a valuable aid in locating and studying ulcers, polypi and foreign bodies in the stomach, and therefore indirectly useful in the prevention of gastric cancer. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 31, 1914.

1. *MAYO, W. J. *Accidental Injuries to the Descending Portion of the Duodenum During Removal of the Right Kidney.*
2. *MCWILLIAMS, C. A. *The Periosteum in Bone Transplantations. Is Contact with Living Bone Necessary for the Life of Grafts, and Will Transplanted Periosteum Produce New Bone?*
3. KNIGHT, C. P. *Epididymotomy.*
4. RICHTER, H. M. *Congenital Pyloric Stenosis. A Study of Twenty-Two Cases with Operation by the Author.*
5. YOUNG, W. W. *Paroxysmal Hemoglobinuria, with Report of a Case.*
6. DANNREUTHER, W. T. *Corpus Luteum Organotherapy in Clinical Practice, with Report of a Case of Bilateral Salpingo-Oophorectomy in Which the Administration of Corpus Luteum Extract was Followed by the Re-establishment of Menstruation.*
7. THOMAS, B. G., AND IVY, R. H. *Use of Cholesterinized Antigens in the Wassermann Reaction.*
8. COHOON, R. C. *Increase in Toxication of Ether by New Methods of Administration.*
9. SPITZIG, B. L. *Vagotony and Its Relation to Mucous Colitis.*
10. FOWLER, O. S. *Ureteral Obstruction Causing Urinary Stasis. A New Etiology in Kidney-Stones, with a New Method of Nephropexy to Secure Ideal Natural Drainage.*
11. GARCIA, L. C. *The Practical Application of Military First Aid in Railway Surgery.*
12. CUNNINGHAM, A. T. R. *Report of a Case of Gradual Occlusion of the Common Carotid Artery in the Treatment of Pulsating Exophthalmos.*
13. STEWART, H. M. *Case Illustrating Value of Roentgen Ray in Diagnosing Obscure Fractures.*
14. THOMAS, W. H. *Abscess Caused by Fish-Bone; Hematemesis Controlled by Hot Water.*
15. GERSTLEY, J. R., AND FULLER, H. B. *A Simple Technic for Blood-Cultures in Children.*
16. VIKO, E. *Tension Sutures.*
17. ROSENBLOOM, J. *The Preparation of Dried "Zymase" from Yeast, for Use in Fermentation Tests of Urine.*

1. Mayo finds that such injuries practically never occur except as the result of a binding down of the duodenum from infection or carcinoma, or when the pedicle of the kidney slips and large forceps are applied and left on several days to control hemorrhage.

2. McWilliams concludes from experimental work that the theory that contact with living bone is necessary for the subsequent life of grafts must be given up. Living bone grafts have life inherent in themselves and are capable of permanent growth, even when transplanted into the soft parts.

The life of grafts is dependent on sufficient blood supply. Forty-eight per cent. of the author's bone grafts were successful without periosteum whether contacted with living bone or not. This goes to show that there is some other factor present making for the life of grafts than the periosteum or contact with living bone, and this the author believes is a sufficient blood supply. Periosteum, however, is a strong factor in producing this supply and should always be used when possible. [E. H. R.]

FEBRUARY 7, 1914.

1. *CHAPIN, C. V. *The Air as a Vehicle of Infection.*
2. *SCHMIDT, A. *Hyperacidity of the Stomach.*
3. NEILSON, C. H. *Some Points in the Treatment of Hyperacidity, Especially with Reference to the Use of Hydrogen Dioxid.*
4. WARFIELD, L. M. *Presence of Dialyzable Products Reacting to Abderhalden's Ninhydrin in the Urine of Pregnant Women.*
5. *LOWY, O. *A Serum Reaction as an Aid in the Diagnosis of Cancer.*
6. VON EZDORF, R. H. *Investigation of the Prevalence of Malarial Fevers in the United States by the United States Public Health Service.*
8. COLE, H. C. *Possibilities in the Routine Practice of a Small Hospital.*
9. DICK, G. F., AND EMGE, L. A. *Brain Abscess Caused by Fusiform Bacilli.*
10. RANSOHOFF, J. *Heredity in Bone Lesions, with the Report of an Unusual Family History.*
11. REYNOLDS, C. E. *A Case of Brain Abscess.*
12. WILDER, W. O. *A Case of Hardware Swallowing.*
13. DORRANCE, G. M. *A Transverse Incision for Operation on the Scrotum.*
14. BARR, A. S. *A Case of Right Inguinal Hernia of Ovary and Tube.*
15. PARKER, C. A. *A Congenital Malformation of the Neck.*

1. Chapin gives a most thorough review of the etiology and mode of transmission of all the so-called infections in contagious diseases and shows that in practically none except tuberculosis can the factor of air infection be given any weight, except that of close contact.

2. Schmidt advises gastroenterostomy in those cases of persistent hyperacidity of the stomach in which internal treatment has failed and in which the condition unfits the patient for work. When comfort only is concerned, medication is the more preferable form of treatment.

5. Lowy found in 19 cases of carcinoma, examined by Abderhalden test, a positive test in all cases. Three post-operative cases of two, four and five years' duration and who do not now show any clinical signs of recurrence gave negative reactions. One case of benign tumor of the breast, one of fibroid and one of diabetes gave positive tests, but Lowy believes these due to faulty technic. He feels that the test is of value and might be of especial value in obscure stomach cases and in women approaching the menopause. [E. H. R.]

THE LANCET.

JANUARY 17, 1914.

1. FOX, R. H. *The Progress of Life Assurance Medicine in the Past Thirty Years.*
2. *GORDON, W. *The Value of the Cardiac Sign in Cancer. Fifty Consecutive Diagnoses with 6% of Error.*
3. COPE, V. Z. *The Early Diagnosis and Treatment of Ruptured Intestine.*
4. YEARSLEY, M. *The Question of "Concubitancy" in Cousin Marriages.*
5. TURNER, G. G. *Recurrent Intussusception: The Record of a Case Which was Operated upon Three Times.*
6. DUFF, D. *Notes on a Case of Extra-uterine Pregnancy in a Rudimentary Fallopian Tube.*
7. WHITE, H. *A Case of Schistosomiasis.*
8. ROLLESTON, H. D., AND FRANKAU, C. H. S. *Acute Leukemia Simulating Caries of the Spine.*
9. ARMSTRONG-JONES, R. *The Rational Treatment of Incipient Insanity and the Urgent Need for Legislation.*

2. Gordon again enthusiastically endorses the cardiac sign in cancer and describes cases in which this sign has been of great help in diagnosis. This sign is based on the abnormal increase in the area of cardiac dullness. It is very hard to see why such increase should occur in loss of flesh due to cancer more than it does in other cases where the loss is due to other causes. [J. B. H.]

Obituary.

HORACE EUGENE MARION, M.D.

DR. HORACE EUGENE MARION, of Brighton, who died suddenly of heart disease on Feb. 8, was born at Burlington, Vt., on Aug. 3, 1843. In 1862 he entered Amherst College, but left to enlist in the Union Army, where he served in the ranks for the remainder of the Civil War. In 1866 he received the degree of B.S. from Dartmouth College, and that of M.D. in 1869. He immediately settled at Brighton, where he continued active in the practise of medicine until his death.

Dr. Marion was formerly president of the Middlesex South District Medical Society and was a member of the American Medical Association, the Massachusetts Medical Society, Massachusetts Association of Boards of Health, Boston Society of the Medical Sciences, Obstetrical Society of Boston and the Boston Medical Library Association. After the War he continued to serve in the local militia, and became medical director of the second brigade, M.V.M. He is survived by his widow, one daughter, and one son.

The unvarying cheerfulness of Dr. Marion's disposition made him, as a practitioner, particularly beloved by all his patients and colleagues. He was modest but vivacious, energetic and companionable. One of his many friends has fitly said of him that he went about with "high thoughts seated in a heart of courtesy." He died happily, as every physician would wish to do, without warning in the readiness of his daily activity, and gave his life as quietly at the end as he had always given it for his fellow-men.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, WEEK ENDING FEBRUARY 21, 1914.

February 13, Medical Inspector William C. Braisted, detached from duty as Fleet Surgeon of Atlantic Fleet, and ordered to duty as Chief of Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Assist. Surgeon J. B. Walker, commissioned assistant surgeon in Medical Reserve Corps, from January 23, 1914.

February 18, Medical Inspector E. P. Stone, ordered to treatment at the Naval Hospital, New York, N. Y.

P. A. Surgeon W. L. Mann, Jr., detached from Naval Hospital, Mare Island, Cal., and ordered to Asiatic Station, via Army Transport leaving San Francisco, Cal., March 5, 1914.

Assist. Surgeon W. W. Wickersham, Medical Reserve Corps, ordered to Navy Yard, Brooklyn, N. Y.

RECENT DEATHS.

DR. FREDERICK H. OSGOOD, who died last week at Allston, Mass., was born in Newton, Mass., on April 16, 1857. He graduated from the Massachusetts Agricultural College in 1878, and after studying at the Royal Veterinary College, Edinburgh, settled in the practise of his profession at Springfield, Mass. He was for a time lecturer on cattle pathology and professor of veterinary surgery at the Harvard Veterinary Medical School. From 1884 to '87 he was president of the Massachusetts Veterinary Association, and served on its executive committee from 1888 to 96. From 1885 to 96 he was vice-president of the United States Veterinary Medical Association, and in the latter year its president. In 1891 he became veterinary surgeon to the Massachusetts Volunteer Militia. From 1894 to 96 he was chairman of the Massachusetts Cattle Commission. He was also president of the Association of Cattle Commissions of New England and a fellow of the Edinburgh Veterinary Medical Association. He is survived by a daughter and two sons.

DR. WESLEY B. PERKINS, who died on Feb. 19, at Roxbury, Mass., was born at Windsor, Me., in 1842. He was educated at Kent's Hill Academy, Me., and at Bates College, and practised as a physician at Bridgton and at Malden, Mass., until his retirement in 1906. He is survived by a niece and by one brother.

DR. JAMES A. COX of New York died on February 3, at the age of 55 years. He was a native of Kentucky and was graduated from the Long Island College Hospital in 1891.

DR. EDWARD GARDINER DAY of New York, a graduate of the College of Physicians and Surgeons in 1888, died on February 3. He was born in 1843 and retired from active practice in 1908.

DR. NATHAN S. MARSHALL, who died recently at Knoxville, Tenn., was born in 1831. He was a naval surgeon, and served aboard the *Vandalia* in 1854 under Commodore Perry.

DR. JAMES JOSEPH BURNS, of the Borough of the Bronx, New York City, died on Feb. 19, at St. Francis' Hospital, after an operation for appendicitis. He was born in New York, and was 33 years of age. Dr. Burns was graduated from New York University and Bellevue Hospital Medical College in 1902, and afterwards served as interne in Bellevue Hospital.

NOTICE.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, March 10, 1914, in the Surgical Amphitheatre of the Boston City Hospital, at 8.15 o'clock.

The meeting will be conducted by the staff of the Boston City Hospital.

The program will be as follows:

Exhibition of cases.

Dr. F. W. White: "Benzol Treatment of a Case of Leukemia." (5 minutes.)

Dr. F. B. Lund: "Treatment of Oblique and Comminuted Fractures of the Femur." (5 minutes.)

Dr. Ernest Young: "Extra-Uterine Pregnancy." (10 minutes.)

Dr. F. J. Cotton: "The Principles in the Treatment of Infected Joints." (5 minutes.)

Dr. J. H. Cunningham, Jr.: "Specimen of Carcinoma of the Prostate, Associated with a Large Prostatic Cyst." (5 minutes.)

Dr. F. H. Lahey: "Statistics of 100 Deaths Following Appendicitis." (10 minutes.)

Dr. G. P. Sanborn: "Remarks in Intra-Spinous Serum Treatment of Syphilis of the Central Nervous System." (5 minutes.)

Dr. F. S. Graves: "A Case of Two Primary Heterogeneous Malignant Tumors with Metastases from Each in the Liver." (5 minutes.)

Dr. O. J. Hermann: "Observations on the Luetin Test." (By invitation.) (5 minutes.)

Dr. Horner: "Treatment of Typhoid Fever with Vaccines." (5 minutes.)

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Original Articles.

VACCINATION EFFICIENTLY PERFORMED.*

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One hundred fifteen years ago, Dr. Edward Jenner published "An Inquiry into the Variolae Vaccinae," and showed that vaccinal inoculation protected the human organism against smallpox. Subsequent experience has substantiated his observation, and variola no longer prevails in countries where vaccination is regularly and efficiently performed.

Where this important sanitary measure is irregularly practiced, as in the United States, the disease recurs at intervals, less severe than in former times, but nevertheless, with considerable mortality and at large cost to the community; as examples, in 1900, the cost of municipal control of 171 cases of smallpox to the city of New Bedford was $23,000; in the spring of this present year, a few cases in our city cost about $10,000.

Smallpox has prevailed in this part of Bristol County nearly every year since 1900, limited almost entirely to people who have come from that part of Canada called Arcadia, and who are without exception, unvaccinated. As their route of entrance is by rail they are not subject to the measures imposed at points of entry along the coast. Their children attend parochial schools and are not amenable to our statutory vaccinal requirement. The exceptions have been persons whose protection had long since run out.

The progress of preventing smallpox in a country like ours where vaccination is optional after the age of entrance to public schools, is rendered difficult by persons who would have others believe that the procedure is useless, harmful or fatal. Organized opposition to vaccination appears to have had its inception in Jenner's England, where compulsory vaccination may now be evaded by a declaration of conscience. An English gentleman could offer no other explanation for this opposition than the well known love of the English to protest against law. Physicians, unburdened by knowledge and unrestrained by conscience, join the ranks, to sell exemption certificates, or with a keen eye to business, as the leading Boston anti-vaccinist, who specializes in a line of "medical practice" which he cannot advertise in this state through legislative restriction.

So long as the opponents confine their arguments to theories, no harm is done. Through a publicity service they keep informed of all illnesses and deaths which by even the wildest flight of fancy could be ascribed to vaccination. Their effective arguments against vaccination are based on the severe sore arms and loss of wage subsequent to vaccination improperly performed in factories and tenement houses in time of epidemics. We can more fully appreciate the statement of an anti-vaccinist candidate for the legislature, this fall, who said: "I expect an increased vote on account of the many vaccinations done in the mills." The real danger from this agitation is that the legislative campaign may be successful and annul our only existing law on the subject, for our legislators may be moved by arguments based on prejudice and falsehood as by truth.

The manner of combatting opposition to vaccination is to vaccinate well, and I would predict that twenty years of efficient vaccination in this state would silence all opposition.

Vaccinia is a disease communicable by inoculation, pursuing a definite course, and conferring immunity against smallpox for a varying period. Peculiar resistance may be manifested according to previous diseases or vaccinations, to innate or inherited characters, or to a number of intercurrent circumstances. In people previously unvaccinated, the eruption begins seventy-two hours after inoculation as a papule, and is fully apparent on the fifth day as a vesicle; on the seventh it has reached maturity, when it is a flat umbilicated vesicle surrounded by a rose red areola. This is the positive and unvarying picture of a successful primary vaccination, "A section of a pearl on a rose leaf." The celebrated wit, Charles James Fox, meeting Dr. Jenner in a large gathering said to him, "Tell me, Dr. Jenner, what is your vaccination like?" Exactly like a section of a pearl on a rose leaf," was the reply.

Crusting of the vesicle begins about the eleventh day and the crust is exfoliated from the twenty-first to the twenty-eighth day, leaving an indelible and characteristic scar, at first red, bleaching with time to white, sharply defined, with distinct pitting.

The "raspberry excrescence" is not infrequently seen three to seven days after inoculation. It becomes red, hard, and naevoid and may persist for months, leaving no scar, and conferring no protection. Its occurrence demands another operation.

THE TECHNIQUE OF VACCINATION.

To learn the technique of authoritative sources, a questionnaire was sent to the four medical schools in Massachusetts. The following replies were received:

Harvard, informant, Dr. M. J. Rosenau. Vaccination is taught practically and theoretically. Technique, incision; sharp needle—really a scratch. Vaccine, that licensed by the govern-

* Read at a meeting of the South Bristol District Medical Society, Fall River, November 13, 1913.

ment. Each student vaccinates one or more persons. Studies progress of the take to scar formation. Two insertions are made, each about three quarters of an inch long and about one inch apart. Students also visit the vaccine farm and see the propagation of the virus. "I spend perhaps, all told, six hours upon the subject of vaccination."

Dr. Rosenau is emphatic for incision and says that scarification is discouraged as dangerous; that it is forbidden by law in Germany.

Tufts, informant, Dr. W. R. P. Emerson. Taught practically at the clinic. Technique, scarify with needle; apply a drop of vaccine and allow to dry; gauze and adhesive tape dressing. Two scarifications are made. Mass. state vaccine is advised. Two insertions are made, ¼cm. in diameter, 1½ inch apart. Patients return in one week; students see them in all stages.

Similar inquiries with an additional question on revaccination were sent to the Surgeon Generals of the War, and the Navy Department, and Public Health Service with these responses:

War Department, informant, Capt. Albert G. Love. Technique: area cleansed with green soap then alcohol; dried with cotton or gauze; abrasions made by scraping or scratching on the selected area. Abrasions, three, one inch apart. Instrument ivory point or sterile scalped. Dressing, sterile gauze, perferably, sometimes vaccine shield. Dressing changed as often as necessary to keep it clean and in good condition; if the vaccination is successful the second dressing is always sterile gauze. Source of vaccine, large manufacturers of the country. If primary vaccination fails, the process is repeated in a reasonable time and is again repeated if the second attempt fails. In practice, practically all men upon enlistment and re-enlistment are vaccinated.

Navy Department, Surgeon General C. F. Stokes. No uniform technique is prescribed. Vaccine points usually employed; source varies. All recruits are vaccinated and repeated until the medical officer is convinced that the person is protected. Crews of ships are inspected from time to time for vaccination and in the event of an epidemic all persons are vaccinated.

Public Health Service, Asst. Surgeon General J. W. Kerr. "There is a general agreement that the best method of vaccination is the simplest and in this respect scarificaton has a distinct advantage; the use of vaccination shields should be avoided and aseptic bandages used."

This department furnishes the information that government licenses for propagation of vaccines have been issued to nine manufacturers.

Absolute cleanliness with a minimum of injury to the skin with aseptic protection during the development of the vesicle until scar formation, are essential to a proper vaccination. Rosenau[1] writes: "The operation may be compared to the transfer of a culture in a bacteriological laboratory. Precisely similar precautions to prevent contamination must be used in both cases. Vaccination must be considered as a surgical problem. No person unfamiliar with surgical cleanliness should be permitted to perform this "little" operation. "The scar should not be regarded as a deformity; to the sanitarian a typical vaccine scar is a sanitary dimple."

Dr. William Osler[2] refuses to vaccinate on the leg unless the patient will agree to remain in bed during the course of the vaccination.

After a discouraging experience with leg vaccination, I now refuse to vaccinate unless the deltoid site be agreed upon. Here inspection is easy, trauma is less likely to occur, and if infection follows, it runs a milder course.

I mention the shield only to condemn it. It is bulky, and invites violence. It often becomes loosened and scrapes the vesicle; it prevents radiation and produces the effects of a poultice; and among the poor it is loaned about to different children, often heavily coated with purulent secretions.

The arm having been dressed after the operation, the patient should return in seven days, or earlier, should constitutional or severe local symptoms appear. The dressing should be removed and the physician look for "a section of a pearl on a rose leaf." If present a bland ointmet with sterile dressing is applied, and in this manner the lesion is cared for until it is dry. If the vesicle has not matured and a mere scratch remain, if we revaccinate the patient in a week or two we may expect to see at the site of the first attempt an awaking which aroused and runs a short course synchronously with the second inoculation, through local anaphylaxis.

When the scar is seen then may a certificate of successful vaccination be given, and not until then. A vaccinated patient should be under the observation and guidance of the vaccinator until all chance of coccogenous infection is past.

Three illustrative cases.

CASE 1. B. K., aged four; vaccinated in the last week of May, 1912; tetanic convulsions appeared June 15; brought to hospital on 16, very dirty, with foul vaccinal wound; no sign of having worn protective dressing; died on 17; death certificate signed "Tetanus following vaccination."

CASE 2. Mary B. March 17, 1913, her four-year-old son was found ill with smallpox; she was "vaccinated" (her arm was scratched with a point), and she accompanied the little son to the hospital to care for him; she developed a severe cellulitis from the point of "vaccination" involving the whole arm, and on April 5 became ill with smallpox.

CASE 3. E. B., thirty years old; four times he has been vaccinated in cotton mills during four epidemics, lost altogether eleven weeks' work, convalescing; his mother has smallpox of fourteen days' duration; the son became ill today (Aug. 25, 1913).

In the first case, B. K., it seems that the most elementary attention to cleanliness could have prevented the tragic sequence.

The same can be said of M. B. The coccogenous infection killed the vaccine bodies, and variolous infection followed.

E. B. has my heartiest sympathy, in that risking his life, in four vaccinations in a dusty mill, all unsuccessful, with eleven weeks of suffering and loss of wage, he did not acquire immunity; I rejoice that he survived and congratulate him on finally achieving smallpox, which will put him beyond the reach of factory vaccinators in the future. You of Fall River appreciate how poorly factory vaccination is done, and the invalidism that follows. The bad results are interpreted by the laity as evidences of the true vaccinal course, and as the operator does not see the patient a second time, the unhappy victim goes on his way to expose himself perhaps recklessly to infection. If he have variola, his experience is capitalized by the opponents of vaccination.

In Dr. Jenner's time it was believed that the immunity conferred by vaccination lasted through life; subsequent observation has shown this to be within wide ranges.

Theobald Smith[3] has recently explained the variation in this way: "It is now well known that vaccination protects only for a limited period. The body forced to produce a variety of antibodies under pressure is not likely to continue such manufacture indefinitely after the stimulus is removed. Nature is not lavish in producing unused commodities. Animals naturally immune do not carry an appreciable quantity of immune bodies about. Their protection is guaranteed by more economical processes of life of which we know as yet very little. The length of time elapsing between vaccination and exposure, therefore, is of great significance in the success or failure of protection. . . . There is the principle of active immunization itself which must be carefully kept before us. When we discuss vaccination as a preventive, we mostly fail to take into account that we are asking something of the individual to be vaccinated, rather than giving him some thing. We are asking his tissues to go through the preliminary process of training to meet some future emergency. Vaccination is a process of education for being better prepared to meet an invasion at once, before it has grown to any dimensions. We have no reason to suppose that the characteristics of the body will be materially and permanently altered by such a training. If the body is below par in the supplying of immune bodies, it is likely to remain so, despite the vaccination. Of two individuals treated preventively alike, one may be able to cope successfully with a large or more virulent dose than the other. The plane of immunity of both is raised by vaccination, but unequally so, and in proportion to their natural endowments."

REVACCINATION.

Kitasato[4], 931 revaccinations.

After 1 year	14	per cent.	successful
" 2 years	33	" "	"
" 3 "	47	" "	"
" 4 "	57	" "	"
" 5 "	51	" "	"
" 6 "	64	" "	"
" 7 "	73	" "	"
" 8 "	80	" "	"
" 9 "	85	" "	"
" 10 "	89	" "	"

Lescohier[5] in a series of 251 revaccinations obtained practically the same results. Millard[6] states that the government report of the German Confederacy shows from 91 to 93% successful revaccinations after ten years. It is manifest that protection is exhausted in one half of all people five years after inoculation and in the rest at the latest about the tenth year. The power to modify the disease continues into later life.

Vaccination is clearly indicated at five or at the latest, ten year intervals. The results of periodic vaccinations support this statement. A recent writer estimated that the unvaccinated in England was rapidly increasing, due to parents availing themselves of the "conscience clause" and that a few years would prepare the country for a wide spread epidemic. Since our state law requires vaccination only as a requirement on entering school, and except on possible exposure, no revaccination is done, it is evident that our cities are practically unprotected. True, our immigrants before mentioned have borne the burden, so far being virgin soil for that seed. The devaccinated have some immunity and have shown the resistance.

The local response to revaccination varies in proportion to the amount of ferment remaining from the reaction induced by the primary inoculation. We may observe the typical primary picture, showing complete loss of immunity; or a rapid course of a few days; or a small papule or transient erythema may be the only sign, and leaving no scar.

Dr. Jenner and his immediate successors made one puncture or incision. In seeking to prolong immunity when smallpox among the vaccinated occurred multiple incisions were employed, and have been generally employed throughout Europe ever since. Bonn[7], Immermann[7], Pfeiffer[7], Seaton[8], Simon[8], Roger[9] and Cory[10] agree that a constant relation exists between the number of scars and the degree of immunity afforded.

The figures of Marson are familiar:

	Cases.	Deaths.	Mort. %
Unvaccinated	2654	996	37.2
Stated to be vaccinated but with no scar	290	74	25.5
One scar	1357	125	9.2
Two scars	888	53	5.9
Three scars	274	10	3.6
Four or more scars	268	3	1.1

Rosenau in his recent text book says: "The number of incisions has an important bearing on the probability of the take as well as protection; it is not wise to depend on one; the relation to the number of vesicles and the amount of reaction to the degree and length of immunity has not been worked out."

American vaccinators generally have been content with one puncture and regard additional punctures as assurances of a successful take.

Size of Scar to Immunity: Russell, Marson and Gayton are quoted by Hanna[11] as believing that the quality and size of the scar area have an important bearing on the amount and extent of the eruption and consequently on the severity of the disease. Corlett[12] believes the protection to be proportional to the size of the scar.

Hanna in a study of the scar area in 943 revaccinated persons who developed smallpox in Liverpool drew the same conclusions.

These phases seemed to me to be of unusual interest and well worth further investigation. Marson's figures, and the continued European practice of multiple incisions with the low incidence of smallpox would warrant further study. For this purpose these questions were submitted to two biologists and two clinicians:

Is greater vaccinal immunity conferred by multiple incisions?

Is the degree of resulting immunity to be estimated by the diameter of the scar?

Dr. Simon Flexner replied that he was unable to answer the questions.

Dr. Alvah H. Doty answered: "I am entirely satisfied that multiple punctures are unnecessary and that all the immunity that vaccination affords can be obtained by a single scarification properly performed with tested virus. This practice has been followed by the Department of Health of New York with the most satisfactory results and is accepted throughout the U. S. and is becoming generally accepted throughout Europe.

"I do not believe that the degree of immunity can be estimated by the diameter of the scar or scars provided the latter are of reasonable size and typical. . . I believe it is unnecessary and a mistake to make the scarification too large. The success of the operation depending rather on the character of the virus and having it well rubbed in without the too free escape of blood."

Dr. Theobald Smith: "I would say that immunity is strengthened in proportion to the number of vaccinal punctures. This fact has been determined by observation. I am not sure that we can explain it on the basis of our present knowledge of immunity.

"As regards the size of the scar, a number of factors may enter. The pustule may have been disturbed; the scab may have been torn off and the ulcer increased in size. It is also possible that when two vesicles are close together they may fuse and thereby increase the size of the scar. The final scar may be increased by injury due to secondary infection of the vesicle. In any of these cases, it would be difficult to say how far the immunity had been influenced."

Dr. John H. McCollom: "It seems to me that a longer immunity is conferred by making three scarifications. . . I can give you no definite figures on the matter, but after a very careful study of the whole subject, I am thoroughly convinced that there should always be three insertions of virus when a person is vaccinated. The experience of the German Empire is confirmatory. It is the custom there in many of the cities to vaccinate a person on each arm and to make three incisions. I never yet have seen a person with six scarifications, no matter how long a time had elapsed since vaccination was performed, have smallpox.

"In regard to your second question so far as the appearance of the scar is concerned, that is a question that cannot be definitely answered. Three reasonably good scars is a fairly sure indication of protection, but the mistake must not be made of thinking that because a person has a large scar, it is an indication of successful vaccination." Here follows the description of the scar resulting from a negative take and the letter concludes thus: "Physicians and the public must be carefully taught that vaccination is not such a simple matter; that it requires an expert to state definitely whether vaccination has been successful or not."

Vaccine: The State Board of Health has propagated and issued vaccine to the physicians of the state since 1904; in the years 1904-1912, 449,378 tubes were dispensed, and from Dec. 1, 1912 to Oct. 14, 1913, 102,942 tubes; a few complaints have been made, which on investigation have always been found to be based on errors of technique rather than to defects in the vaccine.

For more than a year I have used this vaccine exclusively on all patients and on myself. I have been able to get a take in every primary vaccination on the first trial with slight constitutional reaction.

CONCLUSIONS.

Vaccination is a surgical procedure; hence demands surgical asepsis.

The patient must be under the supervision of the physician until scar formation, when a certificate may be given.

He should be told that his immunity is for a limited time; if liable to exposure to be revaccinated.

As those countries are most free from smallpox where vaccination is regularly imposed, a revaccination of all persons in a state should be required at stated intervals.

Vaccination should be done with a minimum of trauma.

The experience of most observers warrants two or more incisions.

Vaccination efficiently performed protects against smallpox.

Vaccination efficiently performed silences opposition.

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CORRELATIONS OF CEREBRO-SPINAL FLUID EXAMINATIONS WITH PSYCHIATRIC DIAGNOSES. A STUDY OF 140 CASES.*

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[From the Laboratory of the Worcester State Hospital,]

THE scarcity of actual correlations between findings in the cerebrospinal fluid and psychiatric diagnoses in any considerable series of cases makes of value a review of the results in a large hospital for the insane. The object of the present study has been to discover of how much value examinations of the cerebrospinal fluid have been in changing, confirming or making more accurate the psychiatric diagnoses. The focal points of interest in this connection are, of course, the diagnosis of paresis and of cerebral syphilis. It may be said in a general way that this review has shown that paresis is not actually as frequent as would appear from purely clinical examination, and that the cases which are most likely to be mistaken for it are Korsakow's psychosis, cerebral arteriosclerosis and cerebral syphilis.

The method† adopted in this hospital is to have a Wassermann test made on the serum of each new patient unless this has been recently done in another institution. If the result is positive, and also in negative cases in which the symptoms or signs are suggestive, the cerebrospinal fluid is examined for the Wassermann reaction, cytology and globulin content. Similar tests are being carried out also on old patients as rapidly as possible. The Wassermann reactions are done at the laboratory of serum diagnosis of the Harvard Medical School. The remainder of the examination, except the differential count, may be done by a non-medical laboratory assistant, who is familiar with blood counting and elementary chemistry.[1]

Statistics. The period chosen for study was the year ending Jan. 1, 1914. During this time 626 Wassermann reactions have been done on the sera of 618 patients, 445 of whom were admitted in 1913, and 173 before that time. The 1913 admissions form an unselected group from which may be estimated the frequency of syphilis in patients admitted to this hospital. The results are:

Wassermann reaction in the serum positive in 80 cases (18%).

Wassermann reaction in the serum negative in 362 cases (81.3%).

Wassermann reaction in the serum doubtful in 3 cases (0.7%).

This percentage of positive sera is lower than that of Paine,[2] who in his study of 200 consecutive admissions to the Danvers State Hospital found 24.5% positive.

During the year ending Jan. 1, 1914, 142 cerebro-spinal fluids from 140 patients have been examined for the Wassermann reaction. Of the 76 specimens from 1913 admissions, 33 (43.4%) gave a positive, 43 (56.6%) a negative result.

CLASSIFICATION.

We have used as a basis of our grouping of the fluids for study, the diagnosis given by the physician on the card accompanying the specimen to the laboratory, combined with the serological and cytological findings in the fluid. It must be emphasized in the beginning that in many instances this clinical diagnosis represents not the final, but the provisional diagnosis after the routine physical and mental examination, and is made with the reservation that it may be changed by the serological and cytological evidence.

* Worcester State Hospital Contribution No. 20 (1914. 1).

† METHOD.—The following is the method adopted for the Wassermann reaction: "Three antigens differing in fixing power are used for each specimen. Two are from human hearts and are reinforced with cholesterin; the third is the alcoholic extract from a fetal syphilitic liver. The complement, which is ten per cent. guinea-pigs' serum, is titrated daily to determine the unit; two units are used in the test. The amboceptor is titrated against .5 cc. of 10 per cent. guinea-pigs' complement in order to determine the amboceptric unit. Two units are used in the test. The amboceptor value is re-determined before each test. Washed sheep's corpuscles, are made up with normal salt solution to 5 per cent. suspension. Five-tenths of a cubic centimeter is used."

"The following controls are used for each test; a strongly positive syphilitic serum; a weakly positive serum; a negative serum, and tubes containing double the amount of each antigen."

"All doubtful cases are repeated at the next test, and if there is sufficient serum, varying amounts of antigen and serum are used, so that the resulting test rarely gives a doubtful result."

The Noguchi test for globulin was used, and was performed as follows: to 0.2 cc. of cerebro-spinal fluid, 0.5 cc. of a 10 per cent. solution of butyric acid in normal salt solution is added, and the mixture heated to boiling. One-half a cc. of normal sodium hydroxide solution is added, and the tube boiled slightly. A flocculent precipitate within 15 minutes indicates a positive result.

For the cell count in the fresh fluid, 0.1 cc. of 3 per cent. acetic acid and 1 cc. of cerebro-spinal fluid (well shaken) are mixed in a white blood counter, and ten fields are counted.

The sediment is prepared for differential counting by the Alzheimer method, *i.e.* by adding to 3 or 4 cc. of cerebro-spinal fluid twice its volume of 95 per cent. alcohol, centrifuging for one hour at high speed, and hardening the precipitate in absolute alcohol, followed by absolute alcohol and ether. The coagulum is removed from the centrifuge tube with a pointed glass rod; embedded in celloidin; cut in sections 7 m. thick, and stained with pyronin-methyl-green. In fluids showing a high or moderate pleocytosis 200 cells were counted. When cells were present in normal or slightly increased numbers, several sections (5 to 8) were gone over carefully and the actual number of each variety of cell present was stated.

The following classification was adopted:—

1. Cases diagnosed clinically as paresis, with which the findings in the fluid were on the whole in accord; 47 cases.

2. Cases diagnosed as paresis, in which the spinal fluid was negative or doubtful; 13 cases.

3. Cases in which the fluid was sent in to the laboratory with the diagnosis "Paresis?"; 20 cases.

4. Cases of organic dementia, including cerebral syphilis; 15 cases.

5. Alcoholic group, including both the acute and chronic forms; 10 cases.

6. Negative fluids from a variety of conditions, including manic-depressive insanity, dementia precox, imbecility, etc. These will not be further considered here.

It is obvious that in this group there is considerable latitude of judgment given on both the clinical and the laboratory sides, but at least it brings out the difficulties of diagnosis and the type of case in which the examination of the cerebro-spinal fluid is of particular value.

Group 1. In this group of 47 cases the Wassermann reaction on the serum was positive in 41 cases, negative in 4, and not recorded in 2 cases. The cerebro-spinal fluid was positive in 36 cases, negative in 9, and not recorded in 2 cases. The serum and fluid were both positive in 36 cases, the serum positive and fluid negative in 5 cases, the serum negative (tested twice) and fluid positive in one case; both serum and fluid negative in 3 cases, and one or the other not recorded in 2 cases.

All these fluids except one, however, showed a pleocytosis, and all but two contained plasma cells. All gave positive ammonium sulphate or Noguchi reactions, usually in high dilutions.

The Wassermann reactions, with the one exception mentioned have not been repeated in cases giving negative results. We should not consider that a single negative report on the fluid where it is impracticable to use "auswertung" methods[3] would weigh decisively against the diagnosis of paresis, if the cytology and clinical picture were typical. Cases showing a positive reaction in the serum and a negative one in the fluid, with a positive cytology, suggest, of course, cerebral syphilis in contradistinction to paresis, and cases in which the serum and fluid are both negative can be put in the paresis group only if the clinical and cytological evidence is very strong.

Schoenhais[4] has recently reported four cases of clinically typical paresis, in which serum and fluid gave repeated negative reactions, but in which the globulin test and the cytology were positive. In three of the cases the diagnosis of paresis was verified by autopsy. All the cases were of the slowly progressing form.

Two of the cases in this series having negative reactions in both serum and fluid are clinically advanced cases of the dementing form of paresis of at least one and a half and two and a half years' duration, respectively. One shows Argyll-Robertson pupils, tremors and practically normal knee kicks; the other slurring speech, rigid pupils, absent knee kicks, incoordination and a positive Romberg sign. The third is apparently an early case of the expansive form, with unequal pupils, reacting sluggishly to light, exaggerated and unequal knee kicks, unsteadiness and tremors.

Of the cases with the Wassermann positive in the serum and negative in the cerebro-spinal fluid, it may be said in a general way that the clinical picture and physical signs are more in accordance with paresis than with cerebral syphilis. In two cases the infection was respectively at least twenty and twenty-three years before the beginning of the psychosis; in the other three cases, the date of infection is unknown. The onset was gradual in all cases. Four of the patients are in an advanced stage of dementia, while the fifth is apparently an early case of the expansive form. Two of the patients have Argyll-Robertson pupils, two contracted pupils, inactive to light, and reacting only slightly to accommodation; the fourth has active pupils. One of the cases is of eleven years' duration.

Group 2. In the second group, those cases diagnosed clinically as paresis, but with doubtful or negative findings in the cerebro-spinal fluid, are two cases typical clinically of the expansive form of paresis. In one the fluid was taken on the day of death, in the other a week before. The sera were both positive, one fluid positive, the other negative. The globulin reactions were slight, the cell counts within normal limits and the sediments showed small numbers of lymphocytes and endothelial cells, with, in one case, possible plasma cells. Unfortunately, no autopsies were obtained, but it seems probable that the terminal stage of the disease may account for the indefinite findings.

In this group is also one other case with anomalous findings: a patient with the clinical symptoms of the dementing form of paresis, with pupils reacting sluggishly to light, exaggerated knee jerks, unequal facial innervation, and slight Romberg sign. The Wassermann reaction was negative in the serum, positive in the cerebro-spinal fluid. The examination of the first specimen of fluid showed a slight Noguchi reaction, a slight cell increase consisting of lymphocytes with a few doubtful plasma cells. The second specimen, taken a month later, gave negative ammonium sulphate and Noguchi reactions, a normal cell count and only a few lymphocytes in the sediment.

Another patient in this series has the following history: 58 years old, a painter for 25 years. In the Worcester State Hospital four and a half years. Has had both lues and numerous attacks of lead colic and has used alcohol in moderation. Six months before admission patient lost interest, became reticent, and irritable, and had attacks of dizziness. On admission he was quiet, euphoric, with delusions

of persecution and reference. He was imperfectly oriented for time and place; had but slight grasp on his surroundings and no insight. Memory was fair; speech somewhat slurring, pupils active, gait unsteady, knee jerks exaggerated, suggestive Romberg's sign. The patient is in a stationary condition, and although quite irritable, is able to work regularly. The Wassermann reaction was negative in the serum, doubtful in the cerebro-spinal fluid. The latter gave negative globulin tests, but a slight lymphocytosis. It is possible that this may be a case of lead encephalitis, although there is no very definite evidence to support this view.

The revised diagnoses in the other cases of this series are: Korsakow's psychosis, 3 cases; acute alcoholic delirium (terminating fatally, no autopsy), 1 case; dementia precox, 3 cases; unclassified depression, 1 case.

On examination of the histories of the patients who proved not to be paretics, the reason for the diagnosis of general praralysis is in most cases obvious. All the cases presented more or less suggestive physical signs, ranging from pupillary inequality, tremors or changes in the reflexes to sluggish reaction to light, speech defect, and in some of the alcoholic cases ataxia. In four cases also the Wassermann reaction in the serum was positive, in two others there was a history of syphilis, while in four syphilis was denied and the Wassermann reaction in the serum was negative. Another fact standing out prominently in this group is alcoholism, which was present in all but one of the cases.

Group 3, in which the fluids were sent to the laboratory with "question of general paralysis," comprises 20 cases. The diagnosis was confirmed in five cases by positive Wassermann reactions in serum and fluid and typical cytology in the latter.

One of these, a man of 61 years, had previously been diagnosed an early senile dementia. The diagnosis of paresis in this case has been substantiated by autopsy. Another patient, a woman, 54 years old, was admitted after a suicidal attempt, showing depression with psychomotor retardation, but without physical signs. The first diagnosis was manic-depressive, or a depression of arteriosclerotic origin. The patient is now dementing, is confused and excitable, and definite signs have appeared.

One case of clinical paresis examined a week before death showed conditions somewhat similar to the terminal cases mentioned in Group 2. The serum gave a negative reaction, the fluid a suggestion of a positive. The globulin was considerably increased, the cell count normal, and the sediment contained small numbers of lymphocytes and endothelial cells. The revised diagnoses in this group are: Alcoholic hallucinosis, 2 cases; acute alcoholic delirium, 1 case; alcoholic deterioration, 1 case; dementia precox, 6; manic-depressive with deterioration, 1 case; manic phase of manic-depressive insanity, 1 case.

A study of the histories of these cases brings out the frequency of the same three factors noted in the previous group,—physical signs, syphilis and alcohol. Ten patients in addition to those in whom the diagnosis of paresis was confirmed, had positive Wassermann reactions in the serum, one other gave a history of syphilis, one had signs of the disease, two denied lues and had negative Wassermann reactions, and in one case no clinical history was obtained. Nine patients, exclusive of the paretics, had a history of alcoholism.

Group 4, that of the organic dementias, contains 15 cases. The examination of the blood and cerebro-spinal fluid has helped considerably to differentiate the etiology of these cases. In seven the Wassermann reaction was positive in the serum, and negative in the cerebro-spinal fluid. Two of these showed negative globulin reactions and negative cytology, the other five a positive globulin reaction, lymphocytosis, with, in three cases, the addition of plasma cells. One of these patients, diagnosed paresis during life, was found at autopsy to have cerebral gummata. In one case in which the serum was not recorded the fluid gave a negative Wassermann reaction, but a positive globulin test and a lymphocytosis. One case presented a negative Wassermann reaction in the blood and a positive in the fluid, with increased globulin content and a lymphocytosis. In five cases the serum and fluid were entirely negative. In five of this group, therefore, in addition to the autopsied case, it seems permissible to assume a syphilitic etiology for the trouble.

Group 5. Ten fluids were sent in from patients with the diagnosis of various forms of alcoholic psychoses: acute alcoholic hallucinosis, 5 cases; chronic alcoholic hallucinosis, 1 case; alcoholic deterioration, 2 cases; Korsakow's syndrome and alcoholic traumatic, each 1 case. One of these cases had a positive Wassermann reaction in the serum, and a negative one in the fluid, but an increase of globulin and a lymphocytosis. One other had similar findings, with the exception that the Wassermann reaction in the fluid is not recorded. Four patients had positive Wassermann reactions in the serum, but cerebro-spinal fluids negative serologically and cytologically. One case with a negative reaction in the serum but in whom the Wassermann reaction in the fluid was not recorded, had a slight increase in globulin, but negative cytology. One case gave negative reactions to all the tests, and one an isolated positive Wassermann in the spinal fluid. One patient on whom the diagnosis of alcoholic hallucinosis was made, was found to have a positive Wassermann reaction in serum and cerebro-spinal fluid, an increase of globulin, and a pleocytosis, with the presence of plasma cells. It is impossible to exclude cerebral syphilis in the alcoholic cases who show a positive Wassermann reaction in the serum, a lymphocytosis and globulin reaction in the cerebro-spinal fluid, and doubtful physical signs.

DISCUSSION.

In reviewing these groups, it is found that among 80 patients in whom the diagnosis of paresis was made definitely or in whom a suspicion of it was entertained, in 57 at the most (71%) the diagnosis appears to be confirmed after examination of the serum and cerebro-spinal fluid. In the 60 cases in which the diagnosis was made definitely, it seems to be substantiated by serological and cytological evidence in 50 cases, or 83%.

On the other hand, three cases of paresis have been discovered by the routine examination of the serum and cerebro-spinal fluid in patients diagnosed on admission as senile dementia, arteriosclerotic depression and alcoholic hallucinosis.

The groups into which the non-paretic cases fall are: the alcoholic, 10; the dementia precox, 9; the manic-depressive, 2; unclassified depression and undiagnosed, 1 each. The revised diagnosis in all the cases, except possibly the Korsakows, would doubtless have been attained by clinical observation alone in the course of time, but for rapid elimination of the suspicion of paresis, the serological and cytological examination of the cerebro-spinal fluid is essential. It is also a common experience in large hospitals that there are on the chronic wards certain demented patients who are supposed to be long-standing cases of paresis, the diagnosis having been made on their admission in pre-Wassermann days, and never challenged. When their sera and fluids are examined, however, the results in a certain proportion of cases are found not to be in accord with the diagnoses and the cases appear on closer inspection to be cerebral arteriosclerosis or syphilis, or Korsakow's psychosis.

Correlations of clinical and autopsy findings from the Danvers[5] and the Worcester State Hospitals[6] in pre-Wassermann days have shown that there is a positive error of about 15% in the clinical diagnosis of paresis. The study of clinical diagnoses before and after examination of the serum and cerebro-spinal fluid goes to prove the same point, *i.e.* that paresis is actually not as frequent as it appears to be from purely clinical observation.

Since Wassermann tests and cerebro-spinal fluid examinations have been commenced, however, the tendency in this institution at least, has been toward more reserve in the diagnosis of paresis, and more care has been exercised in making a differential diagnosis, particularly from cerebral syphilis and arteriosclerosis.

CONCLUSIONS.

Our conclusions may be summarized as follows:

1. Examination of the serum and cerebro-spinal fluid leads to a reduction in the number of cases diagnosed as general paralysis.

2. The cases which have been found most difficult to differentiate from paresis without examination of the serum and cerebro-spinal fluid are cerebral syphilis and arteriosclerosis and Korsakow's psychosis. In regard to cerebral syphilis, however, it must be said that although the findings in the serum and cerebro-spinal fluid are supposed to be sufficiently characteristic to permit a differential diagnosis from paresis, in the individual case they frequently leave one in doubt.

3. In a large insane hospital the routine examination of the serum and cerebro-spinal fluid finds, perhaps, its most immediate value in the rapid confirmation or elimination of the suspicion of paresis in new patients and in revision of the diagnoses of certain patients admitted in pre-Wassermann days.

Thanks are due to the staff for help in collecting the clinical data.

REFERENCES.

[1] The cell counts and globulin reactions in this series have been done by Miss Marion Slater Stone, A.B.
[2] BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxviii, No. 14, April 3, 1913.
[3] The amount of cerebro-spinal fluid used for the Wassermann reaction in these cases was 0.5 cc.
[4] Schoenhals: Monatsschr. f. Psychiatrie u. Neurologie, Vol. xxxiv, No. 43, p. 230, Sept., 1913.
[5] Southard: Journal of Nervous and Mental Diseases, Vol. xxxvii, No. 1, Jan., 1910.
[6] Orton: To be published soon.

TWO CASES OF LUNG ABSCESS CURED BY OPERATION.

BY WYMAN WHITTEMORE, M.D., BOSTON.

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These two cases are reported because in each an abscess of the lung followed immediately after taking ether. One patient had been operated on for a deviated septum and the other had had several teeth extracted. It seems probable that both these cases were due to aspiration of some infective substance.

Both cases are perfectly well at the present time. The first case was operated on a year and three months ago and the second four months ago.

I criticize my technic in the first case at the present time because the operation was done at one sitting. The lung seemed to be adherent to the lower half of the pleura that was exposed in the field of operation, but although I stitched the lung to the pleura before opening into the abscess, yet this patient developed an empyema two weeks after the operation, which I feel was due to leakage of septic material into the pleural cavity. This necessitated a second operation, from which the patient made a speedy recovery.

I think the technic I used in the second case a much safer one. In this case at the first opera-

tion, after exposing the pleura, I placed several gauze sponges against it, and did nothing else except suture the skin and muscle flap back into place. At the second operation, five days later, I found the lung very adherent to the pleura, and after draining the abscess the patient made an uninterrupted convalescence.

Case 1. A married woman of 21, entered Sept. 17, 1912.

F. H. Mother, father, one brother and husband well. Married fifteen months. No children. No miscarriages. No tuberculosis, neoplasm or neuroses. No exposure to tuberculosis.

P. H. Measles, scarlet fever, whooping cough, before five years of age, "nervous prostration" at 18, brought on by over-work and worry; treated for three months with good recovery. Otherwise always well and strong, until November, 1911. No chronic cough. Took cold easily. Cta. at 13. Appetite always good. Bowels constipated. Weight 143.

P. I. Oct. 31, 1911, took ether and had 15 teeth out. Nov. 1, "caught cold." Nov. 2, went to bed with sharp pain, worse on cough in lower left axilla and a dull heavy weight in front of left chest above breast. Coughed night and day, raised thick, dark brown sputum. Was in bed eight weeks, cough gradually lessening and sputum gradually getting lighter in color until it became white and watery, "temperature irregular, 98.6-101, pulse normal, appetite and nutrition good." Cough never entirely ceased but she was up and about and in Jan., 1912, started housekeeping again, and was in fairly good health until March, 1912.

On March 23, 1912, had two hemorrhages within half an hour, raising about 2½ cups of dark red blood.

April 5, 1912, was sent to Sharon Sanitarium with a diagnosis of tuberculosis. In bed for two days after which she was up and about until May 15 when she was discharged against advice.

Patient states that repeated examinations for tubercle bacilli were negative. Within a week from the time of discharge was in bed again with pleurisy, up in two weeks and has remained in fairly good health except that cough had continued. Took cold in August which was followed by return of sputum, cough and pleurisy. Five days before entrance, taken with sudden sharp pain in upper left chest, more severe than pleurisy pain. Felt a gurgling in chest, was frightened, could not breathe for a little while. Similar attack two days later. The amount of cough and sputum has varied greatly but has never been entirely free from cough for eleven months and at times has raised as much as two cupfuls in twenty-four hours. Has slept well except for being disturbed by cough.

P. E. W. D. woman, with clear skin and mucous membranes of good color; pupils circular, equal, and react normally. Superficial lymph nodes negative. Tongue clean. Many teeth gone. No pyorrhea. Throat a little reddened. Heart, dullness from midsternum, 3 cm. to right, 12 cm. to left, 2 cm. outside nipple line. Apex impulse felt in fifth space, inside nipple line. Sounds rapid, regular, with a soft systolic murmur heard along left sternal margin, best at second left interspace. P2 greater than A2 and plus. Pulses equal, good volume and tension. Artery walls not felt. Lung: left, in front there is a space bounded above by the first rib, internally by edge of sternum; below, by fourth rib, and externally by anterior axillary line. There is tympany, coarse gurgling râles, no coin sound, breathing harsh, prolonged expiration but not typically amphoric, cracked pot sound. Nothing abnormal heard in back. There is a small area in the region of the apex of the right lung of relative dulness, slightly increased fremitus and voice. Liver dullness sixth space to costal margin, edge not felt. Spleen not felt. Extremities normal. Knee-jerks present and equal; reports from City Board of Health, state no tubercle bacilli.

Sept. 18, whole right back slightly dull. Left back slightly tympanitic. Breath has a sickish odor, sputum not extremely foul. Tentative diagnosis, "lung abscess" following a foreign body,—an ether inhalation pneumonia or an infarct. Sept. 20, x-ray No. 21,474, a dense shadow occupies the whole of the left middle chest, base and apex clear; right lung negative. Shadow probably due to thickened pleura overlying some pathological process in lung. No foreign body seen. Sept. 22, second plate confirms above.

Sputum examination Sept. 17, slightly foul smelling, muco-purulent, with one blood streak, microscopically many bacteria, mainly cocci of various kinds, none overwhleming in predominance, no tubercle or influenza bacilli seen.

Sept. 20, muco-purulent sputum with two blood streaks, no tubercle or influenza bacilli seen.

Sept. 25, very rare elastic fibre found after boiling sputum with 10% NAOH and centrifugalizing.

Sept. 26, no change in physical condition or in symptoms. Evidence points to the presence of one or more abscesses in left lung at the level of third to fifth rib, probably near the anterior wall, probably pneumonitis about them and thickened pleura. Transferred to the surgical service:

While on the medical service the temperature varied from 98 to 99.2, pulse 90 to 100. Urine normal. Blood, Hgb. 70%; whites 12,200, red 4,264,000.

I operated on Sept. 27, 1912. Intratracheal ether. Patient placed on right side with left arm held high up, giving excellent exposure of left chest. A six-inch curved skin incision in anterior axillary line. Skin and muscle flap turned up. Third and fourth ribs exposed over an area of three inches and resected subperiosteally. Intercostal muscles tied at both ends and excised. Through the upper half of the exposed pleura normal lung was seen moving with respiration, but through the lower half of the exposed pleura, the lung did not move with respiration, was solid to the touch and seemed adherent to the pleura. Fifth rib exposed and resected as the others. Pleura stitched to this solid area of lung tissue. Trochar inserted into this lung tissue, inward and upward, thick blood, only result. Finger inserted along path of trochar and region corresponding to x-ray shadows, explored. A cavity, above and just external to the heart was broken into from which escaped a little foul-smelling pus, mixed with clotted blood. This cavity drained with rubber tube.

Patient made a good recovery from the operation with T. and P. coming down from 101 to normal and remaining normal for nine days during which time she coughed very much less but still raised a little sputum, containing streptococci and pneumococci. The discharge from tube was at first, dark bloody fluid with some muco-purulent material, later becoming entirely muco-purulent. On the tenth and eleventh days following operation T. P. began to go up and during the following week patient

ran a temperature of 101-102 at night, down to nearly normal in the morning. The physical signs on Oct. 17 showed dullness in the left back half way up to scapula. Trochar inserted in eighth interspace, in posterior axillary line, and half a bottle of thick pus evacuated.

Oct. 17, second operation; one and one-half inches of eighth rib resected, subperiosteally pleura opened with escape of a considerable amount of pus. Large rubber tube fastened in.

Patient made an excellent recovery. The discharge gradually lessened so that on November 1, 1912, the tube was left out entirely and on Nov. 4, she was discharged from the hospital.

Dec. 15, patient's doctor reports that she has been gaining strength steadily and has had no pain or cough.

Feb. 10, 1913, patient reports, there is no discharge, both wounds entirely closed, no cough, no expectoration. Has gained twenty pounds since leaving the hospital.

Nov. 17, 1913, patient writes that cough is entirely gone, side is perfectly well and she considers herself cured.

CASE 2. Age 17, single; entered the hospital Aug. 15, 1913. Office-boy.

F. H. Father, mother two brothers and two sisters well.

P. H. Measles as a child. Occasional sore-throat and cold. Appetite good. Habits, no alcohol or tobacco.

P. I. On July 23, 1913, operation on nose under ether for deviated septum. Went home a few hours later.

July 25, began to have headache, frontal region, no nasal discharge.

July 27, pain in chest. Slight cough.

Aug. 1, pain in chest worse, cough and foul sputum. Not working but up and about. Occasionally felt feverish. Cough usually started on lying down. Paroxysms of about five minutes, raising about a drachm or two of yellow sputum. Pain localized under right scapula.

P. E. W. D. N. boy, short loose cough. Skin shows marks of counter-irritation over right chest. Sclera clear, mucous membrane of pale color. Pupils, equal, regular, react normally. No glands felt. Tongue, moderate white coat. Teeth fair. Throat red. Heart, apex in fifth space, 8 cm. to left of median line, just outside nipple line. Shifts 3 cm. in left lateral position in same space. Right border 2.5 cm. to right of midsternal line. Sounds regular, good quality, no murmurs. Pulses, equal, good volume. Lungs: right anterior region at second and third ribs, dull, diminished breathing; slight bronchophony. Right posterior, corresponding region, slight dulness. At the lower angle of the scapula there is dullness and high pitched voice, a few fine and medium moist râles at the base of both lungs. Abdomen: liver dullness fifth space, to costal margin; edge not felt. Spleen and kidneys not felt. No masses, tenderness or spasm. No costo-vertebral tenderness. Extremities negative. Genitals negative.

The next day breath not foul but sputum very foul. Heart slightly displaced to left; right chest fixed, generally tympanitic. Transitory bronchial breathing above right nipple; heart sounds heard well in right axilla. There is probably an area of consolidation surrounding an abscess near root of right lung. Sputum: about 2 c.c., moderately thick, muco-purulent. Not bloody, very foul. Microscopically much pus, occasionally large gram-positive diplococci. A few streptococci in long and short chains. Some bacilli, not characteristic, no tubercle bacilli. X-ray shows dullness at right upper chest as low as fourth rib in front. Lower border of shadow is much more dense than upper border: lung markings cannot be made out in upper part. This may be due to pleural thickening. Diagnosis, abscess of lung.

Aug. 20, the boy does not seem to be absorbing much from his abscess, fairly comfortable except when coughing. Lying on right side is only position which does not induce coughing. The physical signs change rapidly from minute to minute but there is an area of dullness in region of third and fourth ribs in front where at times pure broncho-breathing is heard. T. ranges from 99-101. Urine negative. Blood, hgb. 80%, whites 34,900.

Tranferred to the surgical service:

I operated on August 21, 1913. Intratracheal ether. Patient on left side with right arm elevated. A "V" shaped incision made in right axilla with base up, about five inches across. Skin and muscle flap turned back. Fourth, fifth and sixth ribs exposed and resected subperiosteally for about three inches. Intercostal muscles ligated at both ends and excised. Pleura now exposed. Three gauze sponges laid on it and flap sutured back into position.

Five days later on August 26th, under ether, stitches removed and flap turned back. Gauze removed and pleura found very adherent to lung. On exploring the area corresponding to the shadow in the x-ray, my finger broke into a mass of soft tissue in the upper lobe with the escape of extremely foul odor and a little bloody pus. Tube fastened into cavity.

Patient made a good recovery from the operation.

Aug. 29, discharged considerable foul-smelling pus from tube. Coughs a good deal but raises very little. Temperature 98 to 100.

Sept. 15, cough very much better; does not raise anything; wound draining less.

Sept. 17, tube removed.

Sept. 19, very little discharge from sinus.

Sept. 20, discharged from hospital.

Oct. 15, patient reports in the Out-patient Department, has no cough and does not raise anything. Wound entirely healed. Is troubled slightly with shortness of breath and transferred to the medical department.

Jan. 7, 1914, patient reports that he is feeling perfectly well, except for some shortness of breath.

PROSTATECTOMY WITHOUT IRRIGATION.

BY A. E. ROCKEY, M. D., PORTLAND, OREGON.

More than a year has now passed since I published the composite method of prostatectomy without irrigation[1]. It is five years since I have irrigated the bladder after prostatectomy either in connection with the operation or during the post-operative treatment, except as I shall presently describe. Year by year I am more firmly convinced that irrigation after prostatectomy

[1] North Pacific Surgical Association, Vancouver, B. C., Dec., 1912. Printed in *Surgery, Gynecology and Obstetrics*, April, 1913.

is an error without justification in the physiology of repair.

The first step in the process of wound healing is the formation of a blood clot. The clot has two important primary functions, the arrest of bleeding and the protection of the wound. These are both interfered with by irrigation. A normal blood clot is also more resistant to infection than is diluted blood. When a freshly cut surface is covered with a blood clot the healing process begins at once. Proliferation of the tissue cells readily proceeds under such kindly protection and with such normal food. Remove this by continuous irrigation and what takes place? The exposed cells are rapidly devitalized by the harsh contact with a fluid of lower specific gravity than the cell contents when water is used. By osmosis the cells become swollen, lose their plasm and die. Fortunately their dead bodies afford a measure of protection to the deeper tissues until the misdirected irrigaton has been discontinued. Like all devitalized tissue, however, this layer of dead cells is an easy prey the various saprophytic and pathogenic bacteria, whose toxines make further inroads on the reparative process. When repair is at last established by the formation of a layer of more resistant granulation tissue, its first task is to remove the enfeebled cells by phagocytosis, and cast off the dead layer as a slough. Then and not until then can repair begin in the same manner that would at once take place where the tissues are protected by a blood clot.

The purpose of the operation of prostatectomy is to remove the obstacle to urination with the least possible disturbance from the surgical procedure. Suprapubic enucleation with the finger, as it has been evolved from the methods of Fuller, Freyer and others, has at last come to be considered the method of choice by the majority of surgeons. This operation is essentially one done by the sense of touch. Between the bare index finger of the right hand, whieh bores into the capsule and conducts the various steps of the enucleation, and the two first fingers of the left hand, protected by the glove and supporting the gland through the rectum, there is such a complete recognition of texture, position, size and line of cleavage as would make an unobstructed view unnecessary. But vision at the bottom of a bloody bladder is obtained only at the expense of long incision, deep retractors and much sponging, and a necessarily prolonged operation. This statement is made only on general knowledge, and on my observation of a number of such operations by other surgeons. Not only is the view thus obtained troublesome, but retractors certainly interfere with enucleation. The common sequence of such operations is packing to control bleeding, or as recently proposed, suture of the margin of the prostatic cavity, and the use of very large drainage tubes, both of which necessarily prolong the convalescence. The sewing in of drainage tubes has recently been revived. This necessitates immediate and constant irrigation to keep the bladder clear of clots, which would otherwise stop up the tube. For years' I have insisted that long incision was not necessary for the reason that in making the enucleation the operator was to be guided entirely by the sense of touch, and that the elasticity of the bladder wall and the usual softness of the larger hypertrophy permitted the delivery of a very large gland through a small incision. An inch and a half incision is therefore all that is necessary in the usual case, and two inches for glands of very large size. While the delivery of the gland may be accomplished with a pair of sponge, tongue, goiter or placental forceps, I have found much satisfaction in the use of the forceps I have devised for this purpose



FIG. 1.—Rockey's prostatectomy forceps.

(Figure 1.) The outside of the oval fenestrum is smooth and the inside scalloped, thus ensuring a firm grasp of the enucleated gland without endangering the bladder wall. Bleeding is usually slight, but even if brisk at first, if left alone it usually stops quickly. In the rare exceptions in which bleeding is excessive, we get the advantage of the small incision; the unmolested clot soon gains support from the bladder wall and aids in the arrest of bleeding by pressure.

I have found the valvular suspension suture (Figures 2 and 3) to be of great value in supporting the bladder in an advantageous position for rapid closing, and in preventing the formaton of a pool of urine in the space of Retzius. It is introduced by passing a No. 3 plain catgut with a heavy round full curved needle through the fascia and muscle, and then through the bladder wall parallel to and about three fourths of an inch from the incised margin, which is held by a hemostat, and then back through the muscle

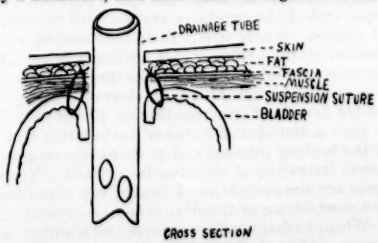
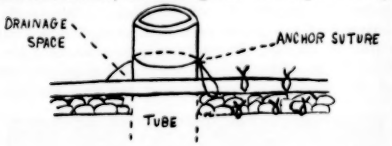


Fig. 2.

and fascia. With a single suture of this kind on each side of the incision the bladder is held in a position of valvular suspension with the edges turned in (Figure 2.) This position of the bladder greatly increases the length of the granulation tissue tract and ensures firmness in the final healing. Two or three chronic cat gut sutures in the fascia, leaving, however, abundant room for a finger size drainage tube, will diminish the danger of hernia. Two silk worm sutures above and one below, anchoring the drainage tube by



VERTICAL SECTION
Fig 3

them, as shown in Figure 3 complete the operation. Care must be taken to leave sufficient room above and below the tube for drainage; a half inch is sufficient. It is through this space that the first drainage comes, as the tube itself is quickly filled with clot. The tube must be short, usually about three inches, so that it will not press on the bottom of the bladder. It should be cut off just above the anchor suture, so that the dressings may lie flat across it.

With the abandonment of irrigation the after care of these cases has been greatly simplified. An absorbent cotton pad covered by a single layer of gauze and held by a light muslin binder, and changed six or eight times in the twenty-four hours, is all that is necessary. The ward nurse is but little troubled with the care of these cases, and special training and experience, required when irrigation is used, is not necessary. The tube should remain in place for eight or ten days. Earlier removal of the tube may disturb the healing at the vesical neck. When the tube is removed I commonly insert a large catheter through the urethra and irrigate the bladder once, and while the water is flowing introduce a large direct vision cystoscope and inspect the base of the bladder and the cavity from which the prostate was removed. By this time it is usually a small cone lined with granulation tissue prepared to bridge the space between the upper end of the prostatic urethra and the vesical mucosa. There is but little tendency to contraction of the orifice in the ordinary case. If, however, the gland was of the hard adherent type without a good line of cleavage, and yet not too firm for finger enucleation, it will be well to pass a sound a few times during this stage of the healing process, and perhaps use an occasional irrigation if detritus be present. These cases are the exception. I should say about one in ten or fifteen of those that come to operation.

When, as frequently happens, the bladder has become infected through previous instrumentation and the urine is bloody and of bad odor, it is not possible by the most energetic irrigation to render the bladder sterile. When such cases come to the surgeon it sometimes happens that false passages have been produced and catheterization is difficult. Under these circumstances we make no effort to catheterize, and fill the bladder with water for the incision. If the condition of the patient is not favorable for enucleation local anesthesia is used, the bladder drained by a stab wound and tube, and the patient left to recuperate for operation later. When the condition of the patient is fair, the operation may be completed at once through a bladder containing this foul urine, then left without irrigating a single time, and the result will be better than with the most virgorous irrigation. With irrigation these cases commonly form large sloughs in the prostatic cavity and in the space of Retzius. Without irrigation the blood clot protects the tissues from infection, and the sloughs do not form.

We may well ask what becomes of the blood clot if it is not washed out. A portion of it may serve for the nourishment of the new granulation tissue. The remainder, after it has served it purpose as a protective and hemostat is dissolved by the urine. This dissolution keeps the urine blood-stained for a few days. It then clears up, the tube is open, the clots and bad odor are gone, and convalescence is established. The absence of irrigation apparatus permits the patient to be out of bed in a wheel chair on the second or third day, enjoying the rest and comfort that such freedom affords.

After a few days in the wheeled chair, we dress patients in painters' overalls of rather a large size, the bib making a good support for the pad of cotton which absorbs the escaping urine. This permits them to walk about the wards even while wearing the tube. The general well-being of the patient is improved by this absence of restraint. The final results are exceedingly satisfactory. The valvular suspension often closes the bladder immediately upon removal of the drainage tube, and voluntary urination in from twelve to sixteen days is not uncommon.

A NEW OPERATION FOR HIP CONTRACTURES IN POLIOMYELITIS.

BY ROBERT SOUTTER, M.D., F.A.C.S., BOSTON,

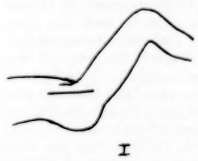
Assistant Surgeon, Children's Hospital, Boston; Instructor, Orthopedic Surgery, Harvard University.

IN poliomyelitis the usual contractures of the soft tissues at the hip hold the thigh flexed and abducted and involve a shortening of more or less all the soft tissues on the outer and anterior aspect of the region of the hip. The deformity may be slight, considerable or extreme. It is

usually accompanied by a compensatory lumbar lordosis which on account of the flexibility of the spine here makes complete correction more difficult.

Contractures of the soft tissues at the hip due to the shortening or lack of growth of the soft tissues following paralysis or injuries are sometimes easily overcome by manipulation and stretching. When they are of long standing they may not yield to tenotomies of the tendons and of the tensor fascia femoris, and myotomies are necessary. The severe contractures that need myotomies require some surgical experience on account of the vascularity and the amount of muscle tissue that must be cut before the hip will come down.

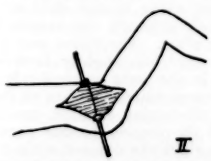
Often so many of the muscles on the anterior aspect of the thigh must be cut that finally the surgeon finds himself down on the hip joint. There are a good many difficulties and sometimes a great deal of hemorrhage, and the operation may seem very unsatisfactory, and is



I

Longitudinal incision two to three inches posterior to the anterior superior spine.

often imperfectly done. For these difficult cases and also some of the milder ones the following operation has been devised: First, a longitudinal incision is made three inches long, parallel with the long axis of the body, with its



II

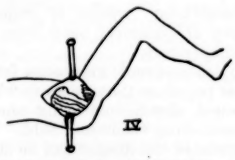
Subcutaneous tissues retracted, fascia lata exposed; the line between the retractors marks the incision transversing the fascia fibers.

middle two inches posterior to the anterior superior spine. (Fig. 1.) It is carried down to the fascia. By retracting the subcutaneous tissue the fascia is exposed from the anterior superior spine back to the trochanter. (Fig. II.) Second, the fascia is incised at right angles to the skin incision, cutting all its fibres transversely from the anterior superior spine back to the great trochanter. Third, the skin incision is next retracted in such a way as to expose the anterior superior spine. (Fig. III.) By means of an osteotome, the attached muscles and fascia are removed from the anterior superior spine subperiosteally on the inside, on the outside and



III

The anterior superior spine exposed. Attachment of muscles and fascia have been subperiosteally removed with an osteotome.

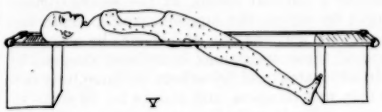


IV

Tissues formerly attached to the anterior superior spine have been pushed downward.

below; they are all pushed downward. (Fig. IV.) The hip is hyperextended backwards, pulling the tissues down with it. If the tension is great the soft tissues are pushed down by means of gauze or blunt dissector, clearing off the periosteum and soft tissues from that part of the pelvis below the anterior superior spine.

Following the operation a plaster of Paris bandage is applied to the whole leg (Fig. V.)



V

Post-operative plaster of Paris anteriorly from the nipple downward, posteriorly from the waist downward. Window in the plaster over the abdomen. Bradford frame raised on boxes to allow hyperextended position of the hip.

(contractures of the knee and ankle may be corrected first). The hip is hyperextended in order to correct the lumbar lordosis usually present in these cases. It is also adducted slightly to stretch the lateral contractures. The plaster of Paris extends from the nipple line in front and from the lower waist behind to the toes of the foot operated upon. A window may be cut in the plaster over the abdomen. The patient is put on a Bradford frame elevated to allow the legs to drop to a lower level than the hips and shoulders. The advantages of this method of procedure are as follows: There is practically no bleeding, the operation does not require much surgical skill and the contracture is definitely relieved. The muscles are not cut across; their periosteal attachment is simply moved one and one-half or two inches downward. The anterior superior spine will be found to be practically moved downward.

Clinical Department.

THE TREPHINE OPERATION IN GLAUCOMA*.

BY MYLES STANDISH, M. D., BOSTON.

Williams Professor of Ophthalmology, Harvard Medical School, etc.

THE unsatisfactory results of iridectomy in chronic cases of glaucoma have been acknowledged by all operators.

I wish to define chronic glaucoma, for the purposes of this paper, as those cases in which there is a continued, slowly increasing tension with steadily diminishing vision and field.

The progress of the disease can be stayed to a certain extent by the use of myotics, but as a rule, they lose their efficacy in the end, and the disease goes on to blindness.

When iridectomy was practically the only operation done for chronic glaucoma it was usually found that the vision diminished immediately after the operation and rarely returned to the condition just previous to the operation, and the ultimate result of many of these cases was that the progress of the disease was not stopped. This unsatisfactory state of affairs has led a number of operators in the last ten years, to devise operations by one means or another, to establish a corneal fistula at the sclero-corneal margin by which the aqueous would drain out beneath the conjunctiva, and thence be absorbed. Some of these operations have been deemed by their advocates, and by others to introduce into the case new dangers, and also to be, in some instances, difficult operations to perform. Several gentlemen, of whom Dr. Elliot of the East Indian Medical Service is the most prominent, have advocated the use of the corneal trephine to remove a disc at the sclero-corneal margin. As this method seems easier and safer than the other methods proposed, I have done nine operations following the method of Dr. Elliot with the exception that in all but two instances which will be noted, I have done a complete iridectomy through the opening made by the trephine, and am glad to accede to the request of the chairman of the committee on papers and present you with a brief resumé of these cases.

CASE 1. A woman, a Syrian, 48 years of age. first seen by me May 28, 1913.

The left eye had an attack of acute glaucoma three years before, but as far as I could determine there had been practically no local treatment, simply morphia for the pain.

At the time of this visit the right eye had good vision with normal disc.

In the left eye she had a tension of + 2, pupil 5 mm. in diameter, typical pathological depression of the disc, and great pain, which had been increasing for several weeks. Two per cent. pilocarpine only reduced the pupil to a diameter of 4½ mm. The tension was very doubtfully diminished, and the pain continued. There was no vision.

Operated on by me June 10 with Elliot's trephine. Good operative result, but after recovery she still complained of some pain and the tension was a little above normal. Pilocarpine controlled the pain.

The patient was seen by me September 13. There was some complaint of conjunctival irritation, but no pain. Over the trephine opening there existed a very large, translucent bleb, which had a base of 7 or 8 mm. in diameter, and an elevation of at least 5 mm. with conjunctival congestion in this neighborhood. Tension had not increased since June. She was using no myotic and had no severe pain. The result was a success in that otherwise we should have been obliged to have removed the eye on account of the unbearable pain.

[Later. The eye was subsequently enucleated for pain and increase of tension.]

CASE 2. Mrs. F., 48 years of age, first seen by me June 30, 1901.

There was slight increase of tension, marked depression in the disc in each eye, but not so much that one would feel sure it was pathological.

The field of the left eye was lost almost to the fixation point down and in. V.O.S. was 20/CC. Vision in the right eye was .7‡2. She was given pilocarpine and when next seen by me in September, vision in the left eye had risen to 20/C-1, and in the right eye it was .8-4. There was no shallowing of the anterior chamber, no history of rainbow halos. Tension was very doubtfully increased. Field in the right eye was slightly diminished in all directions. A collyrium of pilocarpine was prescribed and she was seen by me from time to time.

In March, 1903, vision in the right eye had risen to .9-3. The tension was normal under the myotic. The vision remained the same without lessening of the field or vision under continued use of pilocarpine, till May 6, 1908, when I found by my note that the entire nerve in the right eye was somewhat depressed, although the vessels did not cut under in any place. The vision was .9-5. May 3, 1909, the tension was slightly increased in each eye. Vision in the right eye had fallen to .7, and the field was more contracted than on previous occasions. The pilocarpine solution was increased in strength and the tension became normal, but the vision in the right eye did not again rise above .7. March 7, 1911, vision in the right eye still remained at .7. The field also never recovered its former size, though not markedly diminished.

In the left eye there was some congestion suggestive of chronic irido-cyclitis. Vision in the left eye by June 16, 1910, was diminished to 1/CC eccentrically.

In June, 1911, the field in the right eye had again diminished in size, but vision remained the same. The appearance of the disc was slightly more pathological in character.

In October, 1912, vision in the right eye had fallen to .5, the field had diminished, especially upward and inward, and I advised operation. The patient returned in February, 1913, and by focal light there was slight haziness of the cornea.

The trephine operation was done by me May 22, 1913. The removal of the disc left a small layer of sclera in the bottom of the trephine opening cover-

* Read before the New England Ophthalmological Society, Dec. 9, 1913.

ing the lower third. The iris was coaxed through the opening and a generous iridectomy done. There was considerable hemorrhage. Recovery was without incident. The bleb over the trephine opening was distinctly visible, though not nearly the size of the one previously described. Tension was normal.

September 13, 1913, tension was still normal and vision was 20/XL. The patient comfortable.

CASE 3. Mr. Y., 54 years of age, first seen by me November 9, 1905.

Fifteen years before he had a von Grafe operation on the left eye for cataract, and three years before vision in the left eye had begun to fail. Previously he could read fairly well.

In March, 1904, he had had a secondary operation on that eye but without benefit. When I first saw him tension was + 1 —, he saw colored rings at times, especially blue and green. The ophthalmoscope showed a white nerve with deep depression of the temporal two-thirds of the disc. There was loss of field to the inner side. Vision in the right eye was 4/CC with a partially opaque lens and no tension.

I advised preliminary iridectomy and extraction in the right eye. The extraction was done under cocaine November 19, 1905, without incident. Subsequent vision in the right eye was 20/XL. A secondary operation was done December 6, 1907. There was no ophthalmoscope abnormality of the disc.

In March, 1908, he had a hemorrhage into the vitreous of that eye which left a floating membrane. There was increase of tension afterwards and vision in the right eye fell to 7/XL. Two per cent. pilocarpine kept the tension normal and vision remained the same till January, 1910, when pilocarpine failed to control the increase of tension and one-fifth per cent. eserine was added to the solution. He had a stronger solution of eserine which he used when rings around the lights returned, that stopped the phenomenon. Vision remained approximately the same until December, 1911, when there was distinct loss of vision and contraction of the field on the nasal side.

In June, 1912, there was some steaminess of the cornea of the right eye. He was given one-half per cent. eserine to use habitually, but vision and field continued to fail and haziness of the cornea to increase. In April, 1913, after the use of eserine twice, the tonometer gave a tension of 45 mm. Hg., and I advised trephine operation.

The operation was done April 24, 1913. There was a good-sized bleb over the trephine opening after recovery. Tension was normal. By May 21, steaminess of the cornea and the little stippling of the surface had entirely disappeared and the eye was comfortable.

In September vision, which before operation had diminished to perception of light had increased to 2/C. There was no pain, tension was normal and he was using no myotic.

CASE 4. Miss R., age 59 years, first seen by me May 13, 1910.

Fifteen years before she had first symptoms of glaucoma in the right eye, *i.e.*, rainbow halos, etc. Nine years later iridectomy was done. At the time of this visit, vision in the right eye was .7 and the patient said it had remained practically the same since the operation.

Six years before she first noticed rainbow halos in the left eye, and some irritation after long use. Vision in the left eye was .7 —. She was using a myotic and was very much opposed to another operation.

Ophthalmoscope showed depression of the disc in the left eye, well marked, though not typically pathological. Anterior chamber shallow, field approximately normal. She continued under my care and with the use of a myotic, examination from time to time showed little appreciable change.

In October, 1910, the patient stated that without the use of the myotic the eye got hard. Halos were seldom seen.

September 12, 1912, vision in the left eye was .7 and the patient reported that a sleepless night, or any physical or mental disturbance would make the pupil in that eye unusually wide and that on this occasion it still remained wide open with the myotic. It was wide and one-fifth per cent. eserine was added to the pilocarpine solution. She returned three days later with small pupil. Vision, however, in September, 1912, had fallen to .5 and the field was contracted to the inner side, the tension slightly raised. It was found necessary to increase the strength of the eserine to control the situation.

In June, 1913, the patient returned after having been absent from the city during the winter. Vision in the left eye had fallen to .4 + 1. Pupil was 3 mm. in diameter, anterior chamber very shallow and there was a number of adhesions of the iris to the lens capsule. No history that the eye had been red during the interval.

I advised trephine operation and the patient consented, although she had previously determined never to have an operation on the second eye.

The operation was done June 12, 1913. The iris was so tied down that an iridectomy could not be done through the trephine opening, but a large button-hole was obtained.

November 11, the field had returned to approximately normal size. Vision was .4. No pain. Patient said the eye reddened somewhat from continued use. She was using no myotic. Tension was normal.

CASE 5. Mrs. L., 59 years of age, first seen by me September 2, 1913.

Vision had been distinctly failing for three months. Vision in each eye barely perception of light. No pain, headache or halos. Pupil not dilated, anterior somewhat shallow. Ophthalmoscope showed a large pathological depression of each disc. O. D. tension + 1 and O. S. + 1—.

The trephine operation was advised. This was done September 3d on the left eye and the 10th on the right eye.

A fair iridectomy was obtained through the trephine opening in each case and there was good drainage through the opening in each eye.

After recovery from the operation the patient returned to another city and subsequent history of the case is limited to a letter stating that the patient three months after operation could see large objects.

CASE 6. Miss L., age 73, first seen by me December 7, 1912.

First had slight discomfort and pain in right eye eight years before, and at the end of a year vision in this eye had considerably diminished until at this time there was no perception of light. This had been about the same for five or six years.

Vision in the left eye had been diminishing for

three or four years, more rapidly the past six months. There had been considerable pain, but no halos. The anterior chamber was shallow, the pupil in the left eye 3½ mm., although she was using a myopic. Tension +1 and field lost to point of fixation inward and downward. Vision 20/XXX-2. There was a deep pathological depression in each optic disc. The patient's mother lost vision in one eye wholly. Mother's brother and sister were blind from glaucoma. The maternal grandfather had very poor vision. Except in the case of the uncle and aunt, the patient did not know the cause of the loss of vision.

The pupil contracted under a myotic, the slight congestion disappeared and the tension diminished. Advised operation.

On September 10, 1913, did a trephine operation under holocaine with large button-hole iridectomy through the trephine opening. There was good drainage after the operation.

CASE 7. Mr. A., an Armenian, age 55 years.

First seen by me May 21, 1913. For thirteen months vision in the left eye had been failing, said to have followed some accident. He had an iridectomy, but the vision continued to fall. At the time of the visit, vision in each eye was falling and tension in each eye was +1. 32 mm.: Hg. O. S. and 35 mm.: Hg. O. D. Patient counted fingers at six feet with each eye.

Advised operation. Patient went away and did not return till November, 1913, and then vision was reduced to perception of motion at three feet. There was a shallow anterior chamber, pupils dilated, and the field showed that in each eye it was reduced to a small rounded area extending from the point of fixation about 25° horizontally outward, much less vertically in the right eye, and in the left eye the field of vision covered only about 10° and was similarly placed to that of the right eye.

On November 18th, a trephine operation was done on the left eye, and on November 25th, on the right eye.

The operation on the left eye was done near the margin of the previous iridectomy, but I did not succeed in increasing the iridectomy. Upon recovery there were distinct blebs over each trephine opening. On January 4, 1914, vision in the right eye was 7/CC. Tension was normal.

Any ophthalmologist who has followed these cases will recognize them as those which present the most unfavorable aspect for operative benefit, and the majority of them with the old method of iridectomy would probably go on to permanent and total loss of vision.

These operations I have done according to the method prescribed by Dr. Elliot in which a rather large flap of conjunctiva is dissected up to the margin of the cornea, thence the dissection is more carefully made so that the epithelial surface and perhaps the anterior layers of the cornea are elevated and the flap is then turned back over the cornea, the trephine blade is placed so that about half of its diameter overlaps the dark crescent of the cornea, the other half being over the opaque sclera.

The trephine button is removed as thoroughly as may be, although Dr. Elliot himself feels satisfied if the corneal half of the opening is left patent. The iris is then seized through the opening and a portion of it removed. In most of my cases I have done a complete iridectomy. The conjunctiva is replaced and sutured.

I have found the operation in my hands easy and safe. In none of these cases did I find it necessary to use a cutting instrument to dissect up my flap from the cornea, and I did not carry the cut in the conjunctiva absolutely to the sclero-corneal margin, but I left a space of one or two mm. on each side. I have found the horizontal handle which comes with the Elliot trephine to be a distinct aid in determining the direction in which the cutting instrument is acting, as the slightest tipping of the trephine is perceptible owing to the turning of the flat horizontal handle between the fingers of the other hand. The movable stop on the blade which comes with the Elliot instrument for the purpose of guarding against too deep incision I have found to increase the difficulties of the operation by obscuring the seat of operation. However, it is of considerable comfort to the novice in this operation.

I believe we have in this method a new and valuable procedure and that its use will probably be more and more extended to other varieties of glaucoma as our confidence increases. Whether constant leakage of the fluid will tend in time to impair the physiological functions of the eye only time can determine, but as far as we can see at the present time, the trephine opening effectually prevents any subsequent pathological increase of the intraocular tension.

A SIMPLIFICATION OF THE TECHNIC OF REPOSITION OF THE RETROVERTED UTERUS.

BY JOHN T. WILLIAMS, M.D., BOSTON,

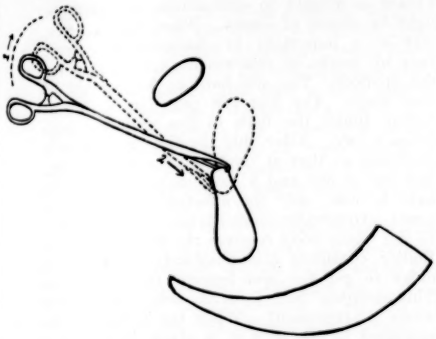
Third Assistant Visiting Surgeon for Diseases of Women, Boston City Hospital; Assistant to the Surgeons, Gynecological Department, Boston Dispensary.

THE technic usually described for the reposition of the retroverted uterus is as follows:

Grasp the cervix with volsellum forceps and draw down the uterus. With the finger in the posterior cul-de-sac, raise the fundus until it can be grasped by the fingers of the other hand on the outside of the abdomen. Then push the cervix back into the hollow of the sacrum.

This process is often very painful, and necessitates a certain amount of trauma. It has been my experience that only the first and last of these steps are necessary.

The method which I have used is as follows: Grasp the cervix with volsellum forceps, raise the handle as shown in the diagram (1), and push the cervix back into the hollow of the sacrum (2).



As the cervix is thus carried backward, if there are no adhesions, the fundus rotates forward into normal axis, upon the supravaginal attachments of the cervix as a pivot.

This procedure is more rapid and less painful than the older one and equally as effective. I have yet to succeed with the more complicated method when I have been unable to replace the uterus by the simplified procedure.

Where the uterus can be only partly raised toward normal position, not infrequently if a pessary be inserted, the uterus will be found in normal position at the end of forty-eight hours. This is contrary to the usual gynecological teaching that a pessary should never be inserted except with the uterus in normal position, but if intelligently used, the pessary can do no harm and often accomplishes what manipulation has failed to do. This use of the pessary has also been mentioned by Kelly (Medical Gynecology, New York, 1908, p. 308).

Medical Progress.

FIFTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.

By Robert B. Osgood, F.A.C.S.; Robert Soutter, F.A.C.S.; Hermann Bucholz, M.D.; Harry C. Low, M.D.; Murray S. Danforth, M.D.

TUBERCULOSIS.

Tubby,[1] writing in a broad general way concerning surgical tuberculosis in children and its rational method of treatment, contrasts the results obtained from the comparatively short stay of the children with bone, joint, gland, and skin tuberculosis in the city hospitals and the results obtained from their prolonged stay in the country hospitals. With the better air, the more generous sunlight, etc., the comparison leads to only one conclusion, that the treatment in the cities is not nearly as economical a method as the country method. He suggests registration and climatic treatment for all cases of surgical tuberculosis in children, outlining a broad administrative scheme and reckoning the financial needs and the approximate number of cases (one child in five thousand.) France with its large hospitals at Berck and Brevannes has shown the value of this method, and Tubby believes that the conditions in England and America demand the establishment of such hospitals in these countries also.

There has been, and will continue to be, much discussion concerning the rôle which trauma plays in the development of bone and joint tuberculosis. The study by Wilson and Rosenberger[2] therefore is of much value. They have attempted to collect the textbook and experimental evidence corroborated by cases and reach the conclusion that this evidence suggests that trauma plays an important part as a secondary cause of bone tuberculosis. There seems to be little evidence to indicate that trauma actually predisposes to bone tuberculosis in a healthy joint, but that in a joint in which there already exists disease trauma increases its activity very constantly.

Packard[3] points out the fact that the prevailing treatment of Pott's disease of the spine in jackets and braces is often unsatisfactory, and that the occasional cures without deformity are negatived by the larger number of cases which after years of disease show considerable deformity. He believes that the recumbent treatment in fresh air offers far greater advantages, and that the forces of gravity in ambulatory cases are dangerous and difficult to neutralize. The operative treatment he considers still "sub judice."

Green[4] reports ten cases of tuberculous osteomyelitis of the digits, the so-called spina ventosa. He apparently relies upon the clinical history and the x-rays for his diagnosis, and upon hygiene, local fixation, and x-rays for their treatment.

(Ed. Note: The Von Pirquet, luetin, and Wassermann reactions would doubtless help in clearing up the accurate diagnosis in this somewhat peculiar type of lesion, for the pathology of the so-called tuberculous osteomyelitis needs thorough study. It is probable that many of the cases represent mixed infections or are possibly caused by mildly pyogenic organisms in pure culture. Drainage of the bone when abscess presents has in our hands apparently been conservative of joint motion and tended toward recovery.)

De Quervain[5] believes that secondary infection is much less to be feared in tuberculous affection of the lymph nodes, tendon sheaths, muscles, or subcutaneous tissues, than in the bones and joints, and although he considers that in the former type of cases operative interference is likely to do less harm than in the latter. It is usually unnecessary when either

radio or heliotherapy can be employed. He states that 4-6 exposures to the x-rays, one every three or four weeks, each dose either a whole or a half a sabourand dose and filtered through an aluminum screen 1 mm. thick is frequently sufficient to effect a cure. He thinks that if the lesion is more than 4 cm. below the surface of the skin one can hope for little from the x-rays.

Tuberculin. We are seeing fewer favorable reports of the use of tuberculin in surgical tuberculosis. This may be because of the rather more positive results which some of the newer methods of treatment, such as heliotherapy, seem to obtain, but is also accounted for in some measure by the necessity for very careful administration which success in its use has seemed to demand.

Fenwick[6] believes strongly in its value in all surgical tuberculosis cases except those grave infections with a highly oscillating temperature. In the out-patient clinic he has administered dilutions in normal salt solution by mouth, each fluid ounce containing 1-1000, 1-100, or 1-10 mg. of tuberculin with ½% phenol. His initial dose is 1 drachm of the weakest solution or 1-8000 of a mg. and the next week he doubles the dose if there is no rise of temperature. He rarely gives above 1-100 mg. at a dose. He reports no bad results and a usual noticeable improvement in appetite, general condition, and local joint symptoms.

Cashman[7] has attempted to accurately determine the correct dosage of tuberculin. He believes that the benefit to be derived is due to the reaction of the body, not to the tolerance, and he thinks the best dose is one that produces the greatest local and focal reaction without constitutional symptoms. By using dilutions of Koch's O. T., he determines what solution is necessary to produce a skin reaction 4 mm. in diameter. This dosage used as a tuberculin injection should produce a swelling 2-5 cm. in diameter. He thus judges the proper dose for the individual case. Of 30 cases, 13 are reported well, 11 improved, and 6 doubtful.

Heliotherapy. Professor Estor[8] has described the technique of heliotherapy. The patients may with benefit rest in bed several days before beginning the treatment. As soon as the patient is acclimated the treatment may begin. At Leysin patients are placed in open galleries without glass, because the glass cuts off the violet and ultra violet rays. The sides of the terrace are shut in to protect the patient from draughts. At Arachion the sick lie flat in boats anchored near the shores or well out in the water. The head is protected with a straw hat and the eyes with smoked or colored glasses. When the temperature rises to 40° or 50° Centigrade, a light gauze is placed over the exposed parts to protect them from burns. At Leysin and on the borders of the Mediterranean all the rays of the spectrum are allowed to reach the exposed skin. On the other hand, Finsen is obliged to concentrate the northern light by means of lenses. When this is necessary it is important to eliminate the caloric rays by means of instruments constructed for the purpose. The sun bath at first should be very short. The first few days Dr. Rollier at Leysin limits the bath to five minutes, three times a day. After this the time is gradually increased so that at the end of a week it may last one or one and a half hours. At first the bath is local, only the affected part being exposed. Gradually more surface is exposed until the whole body receives the rays of the sun. Rollier considers this absolutely necessary in order to get the best benefits from the bath. This complete bath is given only after several weeks of treatment. When the patient is accustomed to the bath it is given four times a day for a period of three, four, or five hours as the time permits. Some cases are greatly benefited by five and seven hour exposures. The joints are fixed as the condition requires, and during the bath the apparatus modified to allow the greatest possible exposure. Often during the early treatment inflammatory symptoms are increased, probably by the caloric rays. This is, however, temporary. If the exposure is too prolonged there may be sun stroke and other general symptoms. The author lays stress on the fact that heliotherapy is a most valuable accessory treatment to the other well known methods.

Witek[9] reports four cases of surgical tuberculosis treated by heliotherapy with an ideal functional and anatomical result, and Alkan[10] has demonstrated that even in the city by placing the children on the roofs or high balconies much may be accomplished by the direct sunlight treatment.

D'Oelsnitz[11] also believes that we must place heliotherapy in the first rank of anti-tubercular measures, but mentions certain untoward effects which have been occasionally observed. For example, that there may be local aggravation of symptoms, usually temporary, but occasionally persisting, and accompanied by loss of weight. In lung cases and in visceral cases hemorrhages sometimes occur, and excessive heliotherapy has been followed by meningeal symptoms. Certain observers, as Vulpius,[12] consider the technique as still incompletely worked out, and are unconvinced that altitude is as important a matter as has been believed. It is remarkable, however, that there seems to be such a consensus of opinion as to the value of the method. Light therapy as well as fresh air and good food therapy would seem to have its individual permanent importance. Since natural sunlight cannot constantly be had and altitude and long days are not within the reach of all, many attempts have been made and are still being made, to artificially produce light rays exactly similar to the beneficial rays of the sun.

Hagemann[13] believes he has produced light

which may fairly be called artificial sunlight, and is superior to the ordinary artificial lights, such as those derived from the Friesen-Beyer, the mercury vapor, and the quartz lamps, which according to Rollier give only a local and an inefficient radiation. Hagemann's device is a quartz lamp surrounded by a corona of simple electric lights. He reports 52 cases treated by this method, with an unusual and satisfactory gain in weight, appetite, longer hours of sleep, and a disappearance of pain.

A very comprehensive volume dealing with the technique of application and the effects produced by the various medical quartz lamps has been written by Meuser,[14] bringing up to date this method of therapy, which is apparently winning many converts, especially in Europe.

ARTHRITIS.

More positive evidence of the infectious nature of rheumatism is furnished by the work of Beattie and Yates,[15] who seem to have been more fortunate than most investigators in establishing a causal relation between the streptococci which they isolate from knee joints and tonsils in rheumatic patients and the arthritis. They have isolated an organism in 129 cases and have inoculated 41 animals. In 9 cases where a definite arthritis existed they have produced a pure arthritis in rabbits in 8. In certain cases where there was no rheumatic history and in certain tonsillar cases the isolated organism produced a septicaemia in nearly every case, sometimes accompanied by an arthritis. The discovery of the organism in the blood is always difficult, but in 3 of 11 rheumatic cases they have succeeded in isolating an organism which produced a pure arthritis in rabbits. They believe that the focus of infection is in the throat or alimentary tract.

Gudzent[16] has examined the blood of 100 patients with "chronic articular rheumatism" with special reference to the number of lymphocytes. Normally the lymphocytes comprise about 20-25% of the white corpuscles, but in these cases the percentage was noticeably increased, being normal in only nine patients, 25-30% in 19, 30-40% in 42, 40-50% in 24, and over 50% in 8. The mononuclear and eosinophilic forms showed no change from the normal percentages and the number of red blood corpuscles and the amount of haemoglobin was normal. Gudzent offers no explanation, but calls attention to the fact that frequently a decrease in the number of lymphocytes has been observed in tuberculosis.

Bornstein and Plate[17] have noticed that a chronic arthritis not infrequently occurs in persons obliged to work under compressed air. They believe that this occupational disease may to some extent be guarded against by gradually accustoming the subject to the usual conditions of life and by insisting upon the slow passage from rooms where compressed air is breathed to the ordinary air.

Lipoma and Synovial Fringes of the Knee. Lefevre and Dubourg,[18] after a review of some seventy-seven articles reporting cases of hypertrophy of the synovial fringes of the knee, consider the main points of diagnosis to be the following. (a). The long duration of the affection and the remarkable contrast between the relative freedom of movement and the changes in the shape of the joint; (b) the contrast between the frequency and intensity of the pains when the knee is used and their rapid subsidence during repose; (c) the integrity of the bone and cartilage forming the joint and the peculiar palpation findings. In short, the first thing when one considers the possibility of lipoma is to appreciate the contrast between the appearance and palpation findings and the practically unimpaired functioning of the joint. They think that conservative measures are futile, and advise partial or total synovectomy, leaving the bones and cartilages intact. As a rule, the patients recover without impairment of function as soon as the excrescences have been removed from the synovial membrane. The authors believe that the three affections, arborescent lipomata, villous polyarthritis, and "Hoffa's disease" are merely three forms of a single lesion which may be termed chronic, polypiform, fibroadipose synovitis.

(Ed. Note: We agree that the large solitary lipomata which give rise to symptoms and the chronic fibrous villi, which are frequently pinched and give sensations of catching, should be removed by operation. Formerly we believed that most cases of villous arthritis should be operated upon, but a thorough trial of the more conservative measures of diet, strapping with adhesive plaster protection of the anterior capsule by apparatus, and the various thermo- and hydrotherapeutic measures, has demonstrated the fact that many of these cases apparently entirely recover without operation. We believe, therefore, that except in those conditions mentioned above, conservative measures should be given a fair trial before the synovectomies advised by these authors are undertaken. We have seen impaired joints and recurrence of symptoms after these radical operations.)

Lasserre[19] reports that the treatment of gonorrhoeal arthritus with anti-meningococcus serum has been very successful in France. It seems peculiarly effectual in the subacute form with a tendency to septicaemia and in the acute types with a tendency to ankylosis. The chronic forms rebellious to other measures have in his experience been favorably modified by it. Lasserre states that four or five injections in 0.2 or 0.3 mg. every four or five days are generally sufficient.

Wolf[20] has been impressed with the beneficial effect of early massage in even the acute gonorrhoeal joints. He believes that careful and in-

telligent massage may be begun about two weeks after the beginning of the disease and its effect is to relieve rather than increase the acute sensitiveness. He gives the credit for this procedure to Bauer of Bergmann's clinic, who considered this treatment safe because of the fact that gonococci in the tissues are very short lived and the chances of causing other infectious processes are very remote.

Handley and Ball[21] claim priority (Jan., 1913) for an operation on hypertrophic or osteoarthritic hip joints which they call "cheilotomy." This operation consists in removing the overgrowth of bone about the acetabulum and restoring free motion in rotation and abduction. Their two cases were in men aged 56 and 62, and they state that they were of traumatic origin. They used a posterior incision and chiselled off all of the "lip" but do not carefully describe this difficult procedure. The results were good four months later.

(Ed. Note: We mention this report because this is an operation which has been done in America in specially selected cases for many years. In the purely traumatic and seemingly quiescent hypertrophic arthritic cases after a trial of complete fixation, it has been useful in gaining more motion and relieving pain, but it should be borne in mind that in many of these cases the limitation of motion and the pain are not caused by the overgrowth of true bone evident in the x-ray, but by the osteoid tissue and general joint sensitiveness which may disappear under fixation. We have been able to relieve by plaster or leather spicas, certainly for years, several of these cases in which the x-ray showed a definite overgrowth, and in which the limitation of motion was marked. The freer motion has persisted after the removal of the fixation unless the underlying disease became active again or trauma again entered in. The operation in the elderly is not without shock, and to reach all the overgrowths may in unskilled hands easily result in greater crippling than the disease. These overgrowths about the hip joints are seen very frequently and we do not believe that this operation should in any sense be considered a routine procedure. It is fair to say that the authors themselves do not advise it in active cases or where other joints are involved.)

POLIOMYELITIS.

An unusually severe epidemic of poliomyelitis in the Parish of Morehouse, in Southern California, has been reported by Patterson[22] in the *New Orleans Medical Journal*. There were 60 cases in six months, and there was a 25% mortality, most of the cases being very acute.

Fraser[23] has examined the cerebro spinal fluid in 126 cases of acute poliomyelitis with the purpose of determining the value of the examination as an aid to early diagnosis and as an indication of the severity of the disease and its probable course. He finds the fluid usually clear, colorless, and under little pressure. In most of the early cases there was some increase in the mononuclear cells, chiefly of the lymphocytic variety. He concludes that while the examination may be of value in the preparalytic and abortive cases for purposes of diagnosis, it has no value as a prognostic sign.

Rosenau[24] discusses the report of the work of the Massachusetts State Board of Health, which seems to indicate that the stable fly is the principal agent in the transmission of the disease. Sawyer and Herman[25] were able to transmit the disease from monkey to monkey in seven cases by means of the stable fly. They, however, doubt that this is the usual mode of transmission and maintain that every precaution against contact infection should be taken.

Allison[26] writing concerning the results obtained by the implantation of silk tendons, after much experimental work on dogs and clinical experience in human beings, reaches the conclusion that in the severer forms of poliomyelitis in children this is a valuable method and that the results are better than in operations where there is removal of bone.

Bartow and Plummer[27] also report excellent results from their later observations of the use of intra-articular silk ligaments in paralytic joints of poliomyelitis. These operations have been devised by them as well as performed, and they report 50 cases without any infection or any tendency for the Lange paraffined silk to cut out or act unfavorably as a foreign body. They consider that the developmental stage of the operation has been passed and that it should be more generally adopted.

(Ed. Note: The editors have observed a comparatively small number of cases treated by these intraarticular silk ligaments. These cases have been distinctly improved and the silk has remained in and performed its function.)

SPASTIC PARAPLEGIA.

Gaugele and Gumbel[28] have published a volume on Little's Disease, the main object of which is to answer the question as to whether Foerster's operation has fulfilled its expectations. They do not think it has. They base their conclusions on the examination of many children at the Home for Crippled Children in Zwickau, some of whom have had Foerster's operation performed upon them and some of whom have been treated by the simpler orthopaedic methods. They think the condition of the latter class compares favorably with the condition of the cases in which division of the posterior nerve roots has been done.

Biesalski[29] also discusses the theories of the causation and methods of treatment of spastic paralysis, and while reporting excellent results from Foerster's operation and the nerve resections of Stoffel, he considers that the thorough and correct application of exercise treatment

and muscle training is the most valuable method of treatment. *(To be continued.)*

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

THIRTIETH ANNUAL MEETING HELD AT WASHINGTON, D.C., MAY 6, 7, 8, 1913.

(Concluded from page 359.)

DR. E. FLETCHER INGALS, Chicago, read an article entitled,

WHAT RELATION, IF ANY, HAVE THE TONSILS TO PULMONARY TUBERCULOSIS?*

During the last fifteen years many articles have appeared in medical journals on the relations of the tonsils to pulmonary tuberculosis. At the early part of this period, it was frequently claimed that the tonsils were a common portal of infection for the pulmonary disease, but subsequent research demonstrated that the tubercle bacilli might penetrate the tonsils and pass through them to the lymphatic cervical glands, causing tuberculosis of the latter, without any involvement of the faucial tonsils. It was shown, however, that there was no connection between the cervical glands and the pulmonary lymphatics. In a small percentage of cases the tonsils appear to be primarily involved in cases of pulmonary tuberculosis, but usually tubercular changes in these glands are secondary and the bacilli appear to have been absorbed from the sputum. It has been shown that the tonsils are the portal of entrance for the tubercle bacilli in many cases of tubercular cervical adenitis, yet inflammation of the cervical glands, non-tubercular in character, appears to be much more frequently due to absorption of infection through the tonsils. The consensus of opinion now is that pulmonary tuberculosis is generally a systemic infection of aerogenous origin, and that when the tubercle bacilli are taken up by the lymphatics they are poured into the general circulation. In pulmonary tuberculosis the bronchial glands may be primarily involved, but this does not appear to be the usual course of the disease. In a recent statement one of the best known pathologists says that he does not think there is any relation between diseases of the tonsils and pulmonary tuberculosis.

DR. W. E. CASSELBERRY, Chicago: The accessory nasal sinuses are such exceedingly complex structures and so intricate of access that one or more small sinuses may escape our attention; even knowing where they may be involved we find our access at fault. Rhinologists have been preaching a nasal origin for asthma and the nasal cure for asthma, and it has never been accepted by the medical profession for the reason that its explanation was not lucid. That these swellings in the antrum which we used to say were congestions, are secondary to nasal accessory sinus suppuration, which in turn occasions the asthma through toxemia by absorption of pus.

* This article appears in full in the *Journal of the Amer. Med. Asso.*, July 12, 1913.

DR. BROWNING, Los Angeles: I recall one case where a patient had been operated on for chronic appendicitis and afterwards the asthma was much relieved. I have had two cases within the past three years of tuberculous glands, one in a child and the other in an adult, who were treated for the tuberculous condition by the administration of tuberculin, and the asthmatic condition has disappeared and so far has not returned.

DR. R. H. BABCOCK, Chicago: We cannot expect patients to be cured if the surgeon merely removed the polypi. One case I recall was a woman who had a local polypus in the nose. The mere removal of nasal polypi is not sufficient, and the reason why this procedure has been followed by only partial or temporary relief lies in the failure of the operator to recognize or remove the hyperplastic ethmoid responsible for the polypi. The effect, we all know, of whiskey on asthma. I think all the facts point to asthma as a phenomenon of anaphylaxis, and I think this view is going to lead to the cure of many cases since asthma has been a distinct reproach to the medical profession.

DR. THOMAS W. HASTINGS, of New York, presented a paper on,

THE RECIPROCAL RELATIONS OF THE CLINIC AND LABORATORY IN MEDICINE.

The author considered the indebtedness of the modern medical clinic to the medical sciences; most clinicians in the rank and file of practitioners deny that there are diseases in which laboratory knowledge counts for everything and that experience of thirty years develops not so much proficiency along certain lines on the first as the modern first grade medical school imparts to its latest graduates.

DR. HASTINGS took up the evolution of epidemiology, the discovery of "carriers"; the indifference to autopsies of most physicians; the complacency with which most diagnoses are made; the advancement of laboratory trained men to clinical positions. Professors in medical colleges should be men who know considerably more of the subject they teach than the clinically trained men in medical schools can ever hope to know on account of the little time the active clinical man can give to keeping pace with any medical science.

DR. E. K. BALDWIN, of Saranac Lake, read a paper on,

THE FRUITS OF LABORATORY WORK IN RELATION TO CLINICAL TUBERCULOSIS.

Much that has been learned empirically about the treatment has simply been confirmed by the laboratory, but it has given us more delicate indications, more definite means of control. Foolish or injurious therapy has been discarded in consequence of tests made in the laboratory. Theories have been born and have died in the laboratory. Too many bedside ideas have been born of criminal ignorance that tuberculosis is a deep-seated infection, that cannot be reached by medicaments as harmful to the tissues as to the bacillus. The public has been led to expect that all the ills of human flesh can be cured by some serum evolved out of a laboratory. Let us do our best to give them a saner view than this without discrediting the real good that comes from it.

DISCUSSION.

DR. CASSELBERRY: I must say it never occurred to me that the laboratory needed any defense. I think its justification can be summed up in two words, antitoxin and Wassermann.

DR. A. K. STONE, Boston: There is no laboratory procedure that cannot be called in question. Even the almost indisputable bacillus of tuberculosis may be disputed, for there are other acid-fast bacilli that come in at times. Nothing gives a man more pleasure than to have enough laboratory knowledge to be able to check up laboratory findings for himself; and even if he cannot go ahead and make new examinations and discoveries, he can have lots of fun in the laboratory.

DR. MINOR: It is an impossibility in these days for a man to be a laboratory man and a clinical worker in a very large practice. The demands of the laboratory upon his time are insistent and have to be met; the demands of the patient are insistent and have to be met, and the two cannot to any great extent be combined. My complaint is that, for reasons that cannot be easily explained, there is a distinct arrogance in the attitude of the modern laboratory man toward the clinical worker. He has done great things; it was the result of the laboratory work that gave us diphtheria antitoxin, and a great many things, and I would not belittle it for a moment; but I cannot admit their claim to the exalted position that they would arrogate to themselves. They must come second to the clinician. We all admit that the plain clinical worker has done in the past and can still do excellent work for sick people without the laboratory, while the laboratory man is perfectly unable to do anything without the clinician. Now my contention is that he thinks he is not secondary, but primary. It was for that reason that I asked a typical laboratory worker like Dr. Baldwin, who combines the clinical and laboratory methods in a happy way, to prepare this paper. I feel in the long run that a balance will be restored. The final effort in medicine is therapeutical, and medicine which does not result in therapeutics is useless, and the world would reject medicine tomorrow unless these resulted in the good of the patient.

DR. POTTENGER: The reason why a clinician, as a rule, cannot do efficient laboratory work is because these two lines of work are adapted to an entirely different type of mind. The clinician is essentially an optimist, and he should be. He sees the needs of his patients and furnishes them. The laboratory man is slow, patient, and ultra-critical in his work. I believe it is absolutely impossible for a clinician working hard all day to sit down and patiently work out a laboratory problem. I have observed that most men who undertake both clinical and laboratory work as a rule neglect one or the other.

The laboratory man is apt to believe that his work is exact. It is not. We clinicians know that our clinical work is not exact. He also is not exact; there is just as much error in the laboratory as there is in the clinic. Now if we learn this fact, if we learn that the laboratory is our greatest helpmate, if we use it right, and learn that it is not as exact as we have been thinking, then, and not till then, will the laboratory and the clinical man be on their proper basis.

DR. KINGHORN: Dr. Pottenger said that the two could not work together, that is to say, a man cannot work in the laboratory and in clinical medicine. Now the physician that I recognize today as being the first physician in the land for what he has done both clinically and in the laboratory, belongs to this society, Dr. Trudeau. As you know, he is a great clinician. There is no one, I think, who can equal him in his clinical knowledge of tuberculosis. No one also can question the rank that he has attained as a laboratory worker in tuberculosis. In other words, he has combined in himself a great clinician and a great laboratory worker. I can also refer to his first assistant, the vice dean of our school up in Saranac Lake, whom I have often thought of as the Elisha, and who is the writer of this paper; and Dr. Baldwin certainly has combined those two qualities. He is a clinician of world-wide renown, and he is also a laboratory worker of world-wide renown, so that I think it shows that these two qualities can be combined in one man. Now, of my observation of the trend of medicine in late years, it is that the physician has combined clinical study with laboratory study. For instance, the Rockefeller Institute was started primarily for investigation. What have they done? They have their Institute right alongside their hospital, so that the two can be combined right there. The whole trend of medicine today, I think, is to combine the two. Dr. Minor has said that a man with a large practice cannot do both. I say that in order to meet that condition, do not let a man have such a large practice. There are other men that are coming along that need the help, and let them share the practice. I am sure, because I have combined laboratory work with clinical work; and I know that you get great principles of treatment from the laboratory that you would not get by reading, and that you will only get them by the laboratory, and I say the whole trend of medicine today is to combine clinical and laboratory study.

DR. POTTENGER: I still maintain that these are the exceptions, and not the rule. I think we all recognize that Drs. Trudeau, Baldwin and Kinghorn are exceptions in their work, but that does not prove that it can be done generally. I could not do it.

DR. BALDWIN: You all agree with me that the well-rounded man has to know something about laboratory work, although he cannot do very much. As for Saranac Lake, this mutual admiration society which Dr. Kinghorn has started up leaves me no answer. In regard to the man who is doing so much practice that he cannot keep up with the laboratory work, I think Dr. Kinghorn's contention is correct. No man should feel himself so desirable to his patients that he cannot take help. He can turn his patients over to somebody else, and the only way that you can comprehend the field of medicine,—and I may say the field of tuberculosis today,—is to have plenty of help, and I mean by that, help in the practice of medicine; and if you are going to keep up even with the new things that are coming up all the time, a man has to be well-read. Then another thing, a little laboratory experience makes a man more self-critical. I do not say it makes him any better practitioner; I think sometimes it interferes with his being a good practitioner, simply because he does not give his patients so much hocus-pocus,—so much talk! But after all, the patients get more confidence if they live long enough with him. A man who is doing both ought to be theoretically better rounded. I have had plenty of experience in both ways, and I realize

my deficiencies in the laboratory work, and I also realize the tremendous advantage that it has given me, and I speak of it modestly because I realize so many mistakes that I have made in clinical work, too. Do not expect such accuracy in the laboratory that you need to consider that as the final word.

DR. JAMES M. ANDERS, Philadelphia, read a paper on,

THE RÔLE OF PHYSICAL EXERCISE IN THE OPEN AIR IN THE PROPHYLAXIS OF TUBERCULOSIS.

There is a disposition on the part of physicians to overlook the importance of muscular exercise in the prophylactic treatment of pulmonary tuberculosis, since the general acceptance of the principle of rest in the treatment of all cases of this disease in which fever is present. The object of this paper is not to attempt to underrate the great value of rest in the active stages of this disease, but rather to emphasize the first-rate importance of the systematic muscular exercise as a means of minimizing the number of susceptible persons.

The American race, as a whole, is undergoing muscular deterioration. On the other hand, the endurance or resistance of an individual is in direct relation to his muscular development. Muscular development was considered in relation to climate. The prevention of tuberculosis involves something more than physical exercise, but the commanding position of this measure is undoubted. The effect of systematic physical exercise, combined with deep breathing, upon the vital power and resistance of the lung texture was considered. Competitive athletics is not to be encouraged among the young. Increased respiratory exchange in muscular activity increases the nutrition and general health of the body. The details connected with the question of the regulation of muscular exercise must vary with the individual.

DR. A. K. STONE, Boston: In the schools there has been a marked change for the better in the matter of fresh air. In Boston there is a general rule that between each lesson period the windows shall be opened while the class does gymnastic and breathing exercises and also again at recess and before the sessions. This rule is at present much modified by many ancient and thin-blooded teachers. At present in Boston we are preaching the open-air school room gospel by an illustrated lecture at the moving picture houses, thus reaching many thousands of mothers and children. The department stores are making provision for rest and exercise as well as for the proper feeding of employees,—all under the most favorable conditions of fresh air.

DISCUSSION.

DR. E. O. OTIS, Boston: In the stress and strain of life it is often difficult to persuade men to take time for physical exercise out of doors. The two classes of people who need it most are the students in school and college and the older men who are retiring from more active duties. Physical exercise should be followed by rest, and not taken when exhausted, but when a certain amount of vigor remains. If men cannot take time for outdoor exercise, carefully supervised and directed physical exercise of the gymnasium will accomplish excellent results. Where you have a limited time, the degree of efficiency by which the various exercises can be applied by a successful director in the gymnasium would accomplish a very great deal.

DR. W. H. SWAN: I was very glad to see the distinction drawn between the value of physical exercise, and the overtrained college athlete. I have seen a considerable number of men who in college had been on football teams and boat crews and had afterwards broken down with tuberculosis, and I have the distinct impression that they do badly. I am sure I have not seen one man who was on the college team, and was thoroughly trained, as I believe they are trained, who has afterwards done well when he had tuberculosis. In line with Dr. Otis' statement regarding rest after exercise, I think that is extremely important, and also the question of not exercising when the person is mentally fatigued. I believe that our tank of energy is all one and if we drain it by mental fatigue and nervous fatigue we have not any left for physical exercise. I think that if the person is very tired mentally he will get no good, but harm out of it.

DR. C. H. MINER: We must also consider the value of rest and exercise in children. In trying to build up children of tuberculous parents in a dispensary where we take tubercular parents, we have the nurses bring all the children to the dispensary for examination. The children from 5 to 14 years of age are usually in perpetual motion when they are not asleep, and it is difficult to secure any improvement in them. The preliminary part of the treatment is physical rest; that is the most difficult part of the treatment to secure. Then, in later life, when the young adults and youths should be having physical exercise, they are in school and not taking necessary exercise that would develop their chest and keep them in good physical condition. We must not urge physical exercise on young children.

DR. ALTON: I want to make one brief comment on the matter of pulmonary exercise or pulmonary athletics. Lung expansion is an exceedingly important thing to consider in those cases that we call pre-tubercular, with no evidence but the diminished vitality of the patient to lead us to fear something to come. There is a large class of men, usually from 20 to 35, in stores as clerks. These men have a low resistance power. We take their chest measure and find a difference of perhaps only an inch and a half between expiration and inspiration. They do not know how to expand their lungs. There is one simple method that I have not infrequently advised in cases where I feared that the slight pulmonary expansion might lead to trouble later on, that is pulmonary gymnastics as an evening exercise. The patient starts out before going to bed, walks half a block, then stands and fills his lungs as full as possible, walks a little further, and then the air is expired. This is repeated several times. These are the cases we cannot send into the mountains to walk up hill to get the same result, but they can get it at home, late in the evening after they have rested from the fatigue of the day, and just before going to bed. I think if any one would follow this method in a given number of cases he would be surprised at the beneficial result.

DR. JAY PERKINS, Providence: I appreciate what Dr. Miner and Dr. Swan have said in regard to the rest of children from tuberculous parents, and those who are fatigued with mental work, and I agree fully with them. I think that in our fresh-air schools one of the advantages we have is the exercise that is given these children, and I believe in

all of our schools there should be a period of intermission and exercise. Part of the benefit is because the children are mentally fatigued. It does give their minds a rest; they can work better afterwards; they can do far better mental work after exercise, as I myself have experienced many times; and I think the most of us have felt better when we have taken a 15 or 20 minutes brisk walk after a hard afternoon in the office.

DR. ANDERS: As to what Dr. Otis has said with reference to the difficulties in carrying out physical exercise among the clerks, and business men as a class. On the other hand, it is possible to give them such direction as they can and will follow, and secure a fair amount of muscular exercise. My own method is to request such patients to walk to their work; if it be too far, then a portion of the distance only. I often tell them to leave the trolley car or other conveyance when within ten blocks or a mile of their offices, and to walk to their destinations very briskly; likewise again at the noon hour. Mornings and nights they must be taught to practice calisthenics for five minutes, and if carried on systematically, this proves most useful. Of course exercise must be alternated with rest. That this work should and eventually must begin among the children in our public schools is undoubted. As compared with the amount of attention given to mental training, surely that bestowed upon physical training is far, far, too little. We want, if possible, to create public sentiment in favor of more and better graded physical education; less pushing of the mind at the expense of the sinews and muscles.

DR. WM. CHARLES WHITE, Pittsburgh, read a paper on,

THE INFLUENCE OF HEAVY SMOKE ON ACUTE AND CHRONIC LUNG INFECTIONS.

Smoke as a problem of cities' health has its main influence upon the respiratory passages. As types of acute and chronic lung infections, on which smoke may have a varying influence, pneumonia and tuberculosis have been chosen. These diseases have been studied from a statistical standpoint for various cities scattered throughout the United States, and comparisons made with the city of Pittsburgh, which probably has the greatest number of smoky days in the year.

In considering the influence of smoke on acute and chronic fatal lung infections, the question of age of distribution, age of city, poverty on the basis of congestion; and topography of the city have been taken into account. The latter feature in such a city as Pittsburgh, with high hills and river valleys, allows a partial segregation of the city into areas of varying smoke density. In other cities, such as Indianapolis, the flat contour does not allow such divisions.

The chief tendency of the study seems to indicate that smoke has rather a severe influence on pneumonia, with a much less influence on tuberculosis.

DR. POTTENGER: Several years ago when traveling through Europe, a layman asked me the question, why it was that the coal miners in Westphalia did not have tuberculosis, and he said that it was true that there was very little of it.

According to Dr. White's chart, Los Angeles has a high death-rate and very little smoke, but everybody knows that the death-rate is high from the fact that a large per cent. of our tuberculosis patients die within the first year because they come into Los Angeles to die.

DR. CASSELBERRY: So many things contribute to the causation of tuberculosis, the density of population, housing and working conditions, sunshine, winds, and dust aside from the carbon of smoke, that it does not seem likely that a chart based alone on carbon contamination can be reliable. We ascribe some of the bad results of the associated gases and other vitiating substances, such as carburetted hydrogen and sulphuretted hydrogen.

DR. BROWNING: It would seem to me that in the open tuberculosis resorts, some effort should be made to segregate the persons who die in these resorts into those who have recently become residents and those who have been a longer resident. I think this would not be very difficult with reference to Los Angeles. What Dr. Pottenger has said may seem as a joke, but it is a fact. Not only about what he said about half of the patients dying within the first year of residence, but about one-fourth during the first month, so you see that the climatic condition of Los Angeles with reference to any local condition, has no effect upon that class of cases. I take the same to be true of any other open resort. It would be very little effort, I think, for the state board of health or the city health authorities to segregate them.

DR. LINSLY WILLIAMS: As to the death-rate from tuberculosis in the different cities, it always seemed to me quite necessary that the cities, if possible, should afford a corrected death-rate, but I do not see quite how they can figure it out if cases are reported as tuberculous, and then are lost track of by removal; and it is difficult to trace them. It may be that one of the reasons why the death-rate is diminished in the cities is because the patients are leaving the cities.

DR. ANDERS: I was much surprised to learn that the influence of smoke on the incidence of pneumonia was greater than on that of tuberculosis. It is quite possible that Dr. White's explanation of this discrepancy is entirely correct. I think it is almost an invariable rule that a person suffering from advanced anthracosis, coming from the coal regions of Pennsylvania to our hospitals in Philadelphia, finally develops pulmonary tuberculosis, which is apt to pursue the usual course of this disease. It is possible that the implantation and the progress of the disease may be retarded in the manner explained by Dr. White. Dr. White chose wisely when he selected pneumonia and pulmonary tuberculosis as types of diseases for comparison, and I think we must allow that his tentative conclusions have more than ordinary value in view of the fact that he has taken into account a great many interfering conditions, *e.g.* the topography, the local congestion of the population, etc. He said nothing about dust in his remarks. Not wishing to criticize his paper, I still think that this and other associated impurities might have been considered in this connection. Truly Pittsburgh, owing to its peculiar topography and the fact that it is the smoky city of our country, is a very fertile and appropriate field for investigating this subject, and I certainly trust that Dr. White will continue his work in this line because it will require observation over a long period of years to give us reliable results.

DR. HINSDALE: I have always understood that one of the deleterious influences of smoke was the fact that it contained so much sulphuric acid; and there are many interesting calculations about the

number of tons of sulphuric acid which are deposited each day in a large city like London from the various furnaces and fire-places in that city, so that the carbon particles being associated with free sulphuric acid, and being inhaled into the lungs is a very bad combination, of course. It would take a long time to convince me that carbon particles, even free from sulphuric acid, if such were the case, would not do the lungs any harm, or would not incite, probably, the infection of tuberculosis.

DR. DELANCEY ROCHESTER, of Buffalo, read a paper on,

THE TWO MOST IMPORTANT FACTORS IN THE PREVENTION OF TUBERCULOSIS.

The detection and destruction of tuberculous cattle will, of course, eliminate the extension of the bovine form of tuberculosis to the human race and the passage and enforcement of laws to this effect should be persistently urged. In this way one of the two great factors in prevention will be made effective. The compulsory segregation of patients in advanced stages of pulmonary tuberculosis was urged. Every case should be investigated, and if unwilling or unable to properly care for himself at home, he should be committed to a sanatorium, for incipient or advanced cases, to stay there until cured or dead. Cremation was urged in case of all deaths from tuberculosis. Instruction in regard to destruction of sputum and feces, in regard to precaution as to personal contact with others and in regard to disinfection of apartments lately occupied by the tuberculous are all of value in checking the spread of the disease; but the author believes strongly in compulsory reports of cases and compulsory removal of suitable patients to their proper sanatoriums.

DR. MINER: The criminal and ignorant poor are absolutely unable to handle in any way their own cases. The advanced tuberculous patients with bad habits are a great source of spread of the disease. It is hopeless to expect these criminal and ignorant poor to be benefited by the ordinary treatment. They will go home and repeat the same errors, and they will serve as sources of infection. I think we have just as much right to segregate them under police control as in smallpox and other contagious diseases. This is important, and until those patients are treated in that way a large part of our efforts toward eradication of tuberculosis is entirely wasted.

DR. OTIS: I want to ask if I am not correct that the human tubercle bacillus will live only at a temperature of 37° C.?

DR. W. L. DUNN: I had an interesting experience recently that I think will perhaps be worth while relating even if it is out of order. Some years ago I had occasion to set aside some cultures. The culture was implanted in March, 1907. Four weeks ago I found that culture, and I thought I would simply see whether it was still alive or not, and that culture grows with facility; it is one of the most rapidly growing cultures.

DR. BALDWIN: I think these statements will only illustrate, as was said here previously, that laboratory results are sometimes fallacious. It has been proved that these earthworm bacilli are not true tubercle bacilli. It is known that they are saprophytic bacilli that grow at cold-blooded temperature and the earthworms are not of any danger to the human being. The turtle bacillus is exactly the same kind.

DR. ROCHESTER: Dr. Otis asked why I said that the bodies of people who died with tuberculosis should be cremated. I feel that all bodies should be cremated any way, but that is another question. The reason I said this in regard to tuberculosis is that tubercle bacilli have been demonstrated in the bodies of earthworms, and it is possible that we may have a spreading of tuberculosis through plants, through lettuce or some other food which may be eaten. It is a mere possibility, but it is a possibility to consider. I thoroughly believe in cremation. There is one other view on which I wish to very decidedly express myself, in regard to the detention ward. I am very glad to hear that they have already established a detention ward in Cincinnati. We are about to try it in Buffalo. I have in mind just one case which illustrates the seriousness of letting patients out to go home to die. I treated a man in advanced tuberculosis some years ago, who finally went home to die. He had a wife and five children. Four of these children and the wife have since died of tuberculosis. He went home to die and they died too.

DR. CLEAVELAND FLOYD, of Boston, read a paper on,

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF CHRONIC INFECTIONS OF THE PLEURA AND LUNGS.

The author has treated during the past four years a fairly large number of cases of pulmonary tuberculosis by nitrogen compression. Some of these have been under treatment primarily for one or more symptoms, such as cough or hemoptysis; but in the majority the object was to arrest an advanced active process. In the larger number reduction in temperature, relief of cough, diminution of expectoration and increase in body weight have occurred. Improvement in circulation, gain in weight and increase in strength followed even where the extent of pneumothorax was limited. In cases of mixed pulmonary infection results have been fairly good only where collapse of the lung has been extensive. The compression of a portion of the lung tends merely to diminish the amount of sputum and reduce temperature. The action of pyogenic organisms is not checked and lung destruction slowly advances. In unilateral cases of active tuberculosis, not only relief of symptoms but arrest of the disease has been obtained. Occasionally it has been possible to arrest the disease in one half of the chest and later, after allowing this lung to re-expand, to compress the second, which has shown evidence of activity. Such cases are reported by German observers. Dr. Floyd exhibited the apparatus used for making the nitrogen injections and described the technic.

DR. HARRY LEE BARNES AND DR. FRANK TAYLOR FULTON of Rhode Island read a report of

SEVENTEEN CASES OF PULMONARY TUBERCULOSIS TREATED BY ARTIFICIAL PNEUMOTHORAX.

(See the JOURNAL, June 19, 1913.)

DISCUSSION.

DR. E. O. OTIS: Boston. I have had occasion to observe this operation recently in Europe. There is a diversity of opinion in regard to what the pleural shock really is. Many authorities attribute it to gas embolism. This is a great danger, and to minimize this danger Prof. Deneke of St. George's Hospital, Hamburg, has devised an apparatus which is

the best for the purpose of all those I saw in Europe. Prof. Deneke's idea is that greater safety is insured in the first injection by using oxygen gas, which is more readily absorbed and is less likely to produce gas embolism should the needle enter a vessel. By simply turning a stopcock he turns to the nitrogen apparatus and injects nitrogen. At my suggestion one of the instrument makers in Boston has imported this apparatus. In every instance the operators in Europe insist upon a very careful x-ray. The Forlanini method was generally adopted, and only in one clinic I saw the open operation used.

DR. W. H. SWAN: Is there any advantage in the nitrogen gas as compared with air, other than it being absorbed less readily, and how much less readily is it absorbed?

DR. W. A. GRIFFIN, Sharon: We have had a series of cases, about as large a number as Dr. Barnes has reported, and we feel every confidence that the majority have been much benefited by the treatment and in perhaps two or three instances we feel that the patients have been brought back from a very perilous position. The most striking case was not, strictly speaking, advanced. The patient had slight signs of tuberculosis of the left lung, with a constant temperature, and it was because of this constant temperature that pneumothorax was finally induced. I think it is important to determine the indication for renewed injections in any case under treatment. What guides have we to go by? The cough is a very decided indication; if it commences to increase that is time to consider another injection; if the amount of sputum commences to increase that is another sign, and if the needle upon being introduced shows a marked negative pressure, that is, perhaps, the most sure and definite sign.

DR. JAMES ALEXANDER MILLER, New York: The experience which I have had in 25 cases convinces me that the percentage of far advanced cases in which you can get very marked results is limited certainly to not more than 10%; but we have had very good results in cases not advanced, but where they had hemorrhages, that frequently being the first symptom, and I have treated since such cases with remarkable success. In three of them they had been bleeding from a pint to a quart a day, and with rising temperature, with no evidence of ceasing of hemorrhage. After the injection of gas the hemorrhage stopped and prompt reduction of fever resulted. We have in such cases as that an indication for prompt pneumothorax treatment. Whether it should be continued or not after the hemorrhage is controlled should be decided for each individual case. In these chronic, advanced cases you get hung up and you are afraid to stop and really feel that it is not justifiable to keep on. We expect to use it in more acute cases with hemorrhage, and also the acute febrile cases with limited lesions.

DR. MILLER related a case in which the nitrogen was given after careful local anesthesia with novocaine up to 900 c.c. at the first injection; there was a minus 1 pressure, with absolutely no discomfort in the patient, when suddenly, just as he was withdrawing the needle the patient turned pale, the pupils dilated, the patient broke into a profuse perspiration and his heart action became weak, but he did not lose consciousness. The interesting thing about it is that this happened just at the end of about 15 minutes' injection of 900 c.c. of gas, and the pulse, instead of getting rapid and irregular, became slower and slower until it reached a minimum of 48, showing probably a reflex vagus action. There is a possibility of producing a small lesion either in another portion of the lung or in the opposite lung a focal tuberculin reaction, as Brauer and Spengler have reported.

DR. BALDWIN: Knowing that the depth of Drs. Floyd and Robinson's needle was sometimes a little hard to gauge, I had a special needle made to gauge the depth of insertion. One may not need it, but in re-fillings I have been obliged to work without any assistant, and I think that in using one hand on the needle and resting this on the chest, prevents the needle from going too deep, and in the primary operation it may serve a purpose in maintaining the needle at the right depth, not allowing it to come out before the nitrogen has begun to flow in. It is also an advantage not to allow the needle to pull back.

DR. POTTENGER: This operation is one particularly for the hopeless cases of tuberculosis. There is the difficulty,—in knowing when a patient is hopeless. When the heart is able to do its work well and he is able to assimilate his food, there are some chances of recovery. I have been observing it in Brauer's Clinic in Europe, but have not done any of it. What is its actual value in arresting the disease, and also about what is the percentage of cases in which difficulty in performing it is found? I am intensely interested.

DR. C. L. MINER: I have performed this operation on some 20 odd patients. I feel that it is chiefly of value to us in cases otherwise hopeless, in which the chance of recovery is small. In this type of case, in which the mortality would be nearly 100%, I have saved 3 cases out of 21. They were otherwise certainly doomed. One danger is the danger of waking up the other lung. You cannot expect it to be perfectly healthy. My own rule would be that if there were anything wrong with more than one-third of the other lung you could not go ahead. I had a case of advanced cavity in one lung, with high fever. I gave her injections. The effects were phenomenal; the temperature dropped to normal, the pulse to normal. Her appetite increased and she felt like a new woman. Fortunately, at the end of three weeks, after the most remarkable improvement, the other lung waked up and I had to take out the gas, and in two months she was dead. I think it is extremely important to use the radiograph in these cases. It will enormously handicap your efforts to be without it.

Now, as regards cases to which I have done harm. I have hastened the death of one patient, though not in a case that could have recovered. It seems to me that it is a wonderful thing if it saves one case out of 100.

DR. J. E. ELLIOTT, Toronto: Dr. Floyd has become enthusiastic over some of the good results that he has seen. He said that some early cases recovered because of the injection. I wonder whether they would not have recovered without it. I would like to ask the question, where the fluid forms after a pneumothorax has been performed in a dry case does it show the characteristics of an exudate or of a transudate; is it inflammatory in its character or purely hydropic? May I ask where pneumothorax has resulted in the rupture of the lung, breaking through into a pus cavity, what pressure has been used in these cases? Has it occurred only in those cases where a high pressure has been used?

DR. FLOYD: In regard to Dr. Otis' statement that the Germans believe that pleural shock is due to embolus, I would say that no gas had been injected into this man, only the needle was introduced; therefore there was no chance of an embolus. Nitrogen was used in preference to air because it is less readily absorbed; probably it stays in the chest two-thirds longer than ordinary air. I agree with Dr. Miner in regard to the value of the x-ray in indicating when it is time to continue with the injections; but I also believe that when you find negative pressure you have waited too long instead of not long enough. I believe 50 or 60% of unilateral cases may be arrested by nitrogen. Dr. Elliott asks why I state that early cases were arrested by this process. The early cases that I have treated, arrest was brought about in a very few weeks, once or twice in two weeks. That is a much more rapid loss of moisture than can be obtained by other methods. As to effusions being inflammatory or transudates, I would say they are probably transudates.

DR. LAWRASON BROWN of Saranac Lake, New York, read a paper entitled,

WHEN IS A TUBERCULOUS PATIENT CURED?

Dr. Brown reviewed early definitions of cured phthisis and stated his conception of the word "cure" as meaning a restoration of the body to a state in which no vestige whatsoever of that disease exists within the body, although in certain instances some scarring is left behind. That a well-defined cavity can ever fully heal without leaving at least a fistulous cicatrix, is highly improbable, but it is entirely possible that in such patients with long "ultra-chronic" disease, the tubercle bacilli may finally disappear. We hear of "apparent" cures, "relative," "economic," "practical," "working" cures, and so on. Those who use these terms confess their doubts. On the other hand are those who "for the good of the cause" (the eradication of tuberculosis) still believe that the general public needs pap and not strong meat, honied words and not real truth. They advance expediency to uphold their position and fear the loss of funds for sanatoriums. Dr. Brown referred to Dr. V. Y. Bowditch, who through long experience saw the light when many of us were still in darkness and for years never used the term "cure" and now uses it only under protest. Dr. Brown believes that pulmonary tuberculosis is curable; that spontaneous healing of tuberculous infection occurs frequently; that healing of clinical tuberculosis may, but rarely does, occur; that permanent arrest is the most frequent termination of the disease in those who are later able to follow their usual occupations; that temporary arrest, of longer or shorter duration, occurs in all except the acute cases and that continuously progressive disease follows only upon several temporary arrests.

DR. C. C. BROWNING read a paper on,

A YEAR'S OBSERVATION OF SYMPTOMS IN CASES OF ADVANCED TUBERCULOSIS IN THE LOS ANGELES COUNTY HOSPITAL IN CONNECTION WITH WEATHER CONDITIONS.

The author had previously reported to the society the apparent influence on temperature and hemorrhage in tuberculous patients with reference to certain meteorological phenomena. Unseasonable or very sudden changes in temperature appeared to influence temperature in patients, while equal or greater changes occurring slowly did not. In the present report the patients were all in the advanced stages; 61 cases were charted and these embraced 21,968 patient-day observations. The charts covered the months August to March inclusive. Another chart showed the relation of temperature, humidity and rainfall to the number of deaths from tuberculosis in 1910. On a rising barometer with falling humidity with wind west of north and a clearing day the patients were pleased or jovial and optimistic; with reverse conditions they were pessimistic, cross, very irritable and some of them unreasonable in their demands. With the so-called "Northers" there is discomfort and increased nervous tension. This was noticed also in the lower animals.

DR. JOHN M. SWAN, of Rochester, N. Y., read a paper giving the details of the differential leucocyte counts in eight cases in which tuberculin injections were made for diagnostic purposes, in order to determine, if possible, the influence of tuberculin on the eosinophile leucocytes.

Case 1. Eosinophile before the injection of tuberculin, 2.3%, 3.2%; after the injection of 5 milligrams of tuberculin, 7.8%. Tuberculin test positive.

Case 2. Eosinophiles before the injection of tuberculin, 0.4%, 0.2%; after the injection of 3 milligrams of tuberculin the eosinophiles disappeared from the peripheral blood and remained absent until the patient died. Reaction negative.

Case 3. Eosinophiles before the injection of tuberculin, 5.6%, 5.0% (Ascaris lumbricoides infection); after the injection of 5 milligrams of tuberculin, 10.8%. Reaction positive.

Case 4. Eosinophiles before the injection of tuberculin, 5.2%; after 3 milligrams of tuberculin were injected, 9.%; after 5 milligrams of tuberculin were injected the eosinophiles disappeared. Reaction positive.

Case 5. Eosinophiles before the injection of tuberculin, 4.2%; after the injection of 1 milligram of tuberculin, 8.4%. Reaction positive.

Case 6. Eosinophiles before the injection of tuberculin, 3.8%, 1.6%; after the injection of tuberculin no increase in the eosinophiles. Reaction negative.

Case 7. Eosinophiles before the injection of tuberculin, 6.4% and 1.2%; after the injection of 5 milligrams of tuberculin, 4.0%. Reaction negative.

Case 8. Eosinophiles before the injection of tuberculin, 4.0%; after the injection of 3 milligrams of tuberculin, 8.8%. Reaction positive.

In these eight cases eosinophilia was seen after the injection of tuberculin for diagnostic purposes, in five cases and was absent in three cases. In the five cases in which the eosinophilia was observed there was a positive reaction. In the three cases in which eosinophilia was not found, the reaction was negative. One might draw two conclusions from these results: First, that eosinophilia is due to the fever accompanying a positive reaction. Second, after the injection of five milligrams of tuberculin in a person who is not suffering from bacillus tuberculosis infection, not enough tuberculin is administered to produce the eosinophilia.

The first conclusion must be rejected because all elevations of temperature are not accompanied by eosinophilia. The second conclusion may or may

not be justified. I have no evidence to offer upon that point.

DR. WILL HOWARD SWAN, of Colorado Springs, reported,

SIX CASES OF TUMOR OF THE LUNGS AND MEDIASTINUM SIMULATING PULMONARY TUBERCULOSIS.

These patients had been sent to Colorado at much sacrfice. One was a lymphosarcoma of the mediastinum in a woman aged 30. At autopsy it was found to be of the size of a child's head. No macroscopic evidence of tuberculosis anywhere. The second case was a primary carcinoma of the lung, in a man aged 53. He had slight expectoration for four months; lost 28 pounds and had moderate fever; sputum blood-stained a few times, but had shown no bacilli on several examinations; positive skin tuberculin test. At autopsy the left lung was a tumor mass.

The third case was of persistent thymus, possibly Hodgkins' disease, in a woman of 40. The others were of malignant disease. The diagnosis and clinical symptoms in all these cases were detailed. The differential diagnosis was gone into fully, but this was acknowledged to be impossible early in the course of these cases.

Book Reviews.

The Modern Treatment of Nervous and Mental Diseases. By American and British authors. Edited by WILLIAM A. WHITE, M.D., and SMITH ELY JELLIFFE, A.M., M.D., Ph.D. Vol. II. 8vo. pp. viii, 816. With 50 plates and 85 illustrations in the text. Philadelphia: Lea and Febiger. 1913.

The second volume of this new work on treatment has appeared very soon after the first, and confirms the favorable verdict pronounced upon its predecessor. This volume deals almost entirely with the diseases of the nervous system, diseases of the mind and some nervous diseases having been discussed in the previous volume. The first chapter, on the treatment of the neuralgias and neuritides, by Dr. S. I. Schwab, is wholly inadequate, omits various types of disease from any consideration, and neglects many important factors in treatment. Mr. James Sherren's chapter on the injuries of nerves, on the other hand, is, as might be expected, an admirable essay on the subject from the surgical standpoint. Dr. I. Abrahamson writes on muscular atrophies and dystrophies,—a chapter which contains considerable irrelevant matter, much overelaboration, and is rather unsatisfactory in its general aspect.

Dr. Jelliffe's chapter on the treatment of headaches is comprehensive and adequate. Dr. H. H. Hoppe sums up our knowledge of the treatment of spasmodic disorders satisfactorily. Dr. J. F. Munson's article on the treatment of the epilepsies is written from the asylum standpoint and is ill adapted for the general practitioner. He emphasizes the tendency to dementia, the inability to engage in productive labor, and the necessity of institutional treatment, and holds the New York prejudice against the use of bromides. The physician called upon to treat the epileptic with comparatively infrequent attacks, who shows slight tendency to mental deterioration, and who is out in the world earning his living and filling his place adequately in the community, will find little help in this pessimistic chapter. Dr. W. J. M. A. Maloney deals with the meningitides in an inadequate fashion, inserting a section on the meningeal form of poliomyelitis, and paying scant attention to otitic meningitis. The other cerebral complications of otitis, by the way, receive little attention. Dr. Jelliffe's long article on syphilis, supplemented by Dr. H. J. Nichols' chapter on salvarsan, is a very complete and exhaustive treatise on our present knowledge of all forms of syphilis of the nervous system, including the so-called "para-syphilitic" affections. It is very full and up to date and is the best chapter in the volume. Dr. Frederick Tilney contributes an over-elaborate but not especially complete chapter on the treatment of vascular lesions of the brain. Dr. S. A. Kinnier Wilson gives a clear and instructive account of the treatment of aphasia and apraxia. Dr. E. W. Scripture's article on stuttering is an excellent presentation of his own methods of instruction, which have proved so helpful in many cases. Dr. C. K. Russel discusses the treatment of the diseases of the cranial nerves and spinal cord in a somewhat incomplete manner. Dr. Gordon Holmes gives a clear account of diseases of the thalamus, mid-brain and cerebellum, with comparatively little to say, as might be expected, in regard to treatment. Dr. C. D. Camp's chapter on paralysis agitans and multiple sclerosis is of much value and presents the results of his own careful investigation of these diseases. Dr. Louis Casamajor sums up the treatment of the toxemias of dangerous trades and drugs. Drs. A. E. Halstead and R. T. Vaughan give an admirable summing up of the methods of surgical treatment of the brain and cord.

The editorial work in the present volume seems less thorough than it was in the previous volume. The selection of subjects is certainly open to criticism. We can see no satisfactory reason for assigning chapters on a purely anatomical basis, such as those assigned to Drs. Russel and Holmes, as if the location of a lesion had a special influence upon its treatment, except in regard to possible surgical interference. Furthermore, certain serious omissions are to be noted. Encephalitis, brain abscess and sinus thrombosis receive only cursory mention and tumors of the brain are considered very inadequately and in several different chapters. Nevertheless, in spite of these grave defects, and the other defects common to all composite works, there is much of value in this volume, which confirms the favorable opinion which we gave in the review of the first volume.

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A NEW LEPER HOSPITAL AT PENIKESE.

THE outcome of House Bill No. 136, providing for a hospital building at the leper colony on Penikese Island should be favorable, judging from all previous legislation regarding questions for the care and treatment of others of our Massachusetts population who are not more unfortunate. No one can question the imperative need of a modern building for the care and special treatment of the lepers. For a number of years Massachusetts has looked upon these unfortunates in any but a proper light. Deprived of their liberty, segregated on a most desolate island, and because of difficulties of administration, practically unprovided for from a medical point of view, these people have, until recently been allowed to exist and nothing more. It is undoubtedly the duty of the state to provide for them a hospital, baths and means for special medical treatment, as well as fire-proof living quarters. There should be no false economic reasons when it is a question of the duty of the state and of justice to persons in its care.

It was a matter for congratulation when the State Board of Charity, two years ago, began to insist forcefully that the unsatisfactory conditions at the Penikese institution must be supplanted by scientific medical treatment. Since then matters have improved, but are by no means to the credit of Massachusetts. Visitors to the island have had no difference of opinion as to the needs of the institution. The efforts of the State Board of Charity for a modern building with modern equipment is a step in the right direction.

Apart from the question of the care of the patients, it is well to pause and ask whether the state does not owe some protection to those individuals who are caring for the lepers. At the present time it is unlikely that the state can procure help with conditions such as they are; but there can be no reason why, with changes such as are planned, the state should not be able to attract and hold responsible and desirable persons to care for these unfortunate people.

We have had an opportunity of inspecting the hospital plans and approve of them most heartily. Every provision that a modern scientific institution should have has apparently been thought of, and when the legislature has provided funds for the erection of this building, we can afford to forget her past indifference and look with pride to the position which Massachusetts will take in the treatment and care of leprosy.

THE FEDERAL INCOME TAX AS IT AFFECTS THE PHYSICIAN.

To some of those whose income is derived mainly from fees for personal service of a professional kind, that provision of the income tax which requires that *debts* should be included as income seems unfair.

On the back of the blank form for income tax returns, there are two explanatory paragraphs which read as follows:

"13. Persons deriving fees or emoluments for professional or other services, as in the case of physicians or lawyers, should include *all actual receipts* for services rendered in the year for which return is made, *together with all unpaid accounts*, charges for services, or contingent income due for that year, if good and collectible."

"14. Debts which were contracted during the year for which return is made, but found in said year to be worthless, may be deducted from gross income for said year, but such *debts cannot be regarded as worthless until after legal proceedings to recover* the same have proved fruitless, *or it clearly appears that the debtor is insolvent.* If debts contracted prior to the year for which return is made were included as income in return for year in which said debts were contracted, and such debts shall subsequently prove to be worthless, they may be deducted under the head of losses in the return for the year in which debts were charged off as worthless."

It is inevitable, therefore, that many physicians have been confronted with the alternative

of paying the tax on a long list of debts or of placing the corresponding bills in the hands of a lawyer for collection.

The close personal relation between patient and physician, and the attitude of the conscientious practitioner who takes pride rather in the excellence of his work than in the return for the same combine to make it peculiarly embarrassing for him to resort to legal proceedings for the collection of bills. Rather than do this, we believe that some of our best physicians will pay the tax and fail to collect the money due them.

It seems pertinent to ask why the physician should be placed in this embarrassing position. Why was not the law so framed that the tax should be levied only on actual receipts of the year, exempting for this year income due before the law went into effect? This year's bills if not paid until next year could then have been included in next year's income and so on in succeeding years, and the individual would then be free from taxation on prospective income on the one hand, and on the other, he could, if he chose, dispense with legal means of collection without injustice to himself.

MEDICAL LEGISLATION. REGISTRATION OF NURSES.

THE members of the State Board of Nurse Examiners have found during the past three years that the benefit to be derived from the law which requires a nurse to take an examination before he or she can practice as a registered nurse, is more or less nullified by the fact that some nurses have in one way or another picked up enough knowledge to pass the required examinations, who, nevertheless, have not received thorough training. The board is unanimous in feeling that it should have the authority to send some suitable person to visit the schools that are undertaking to qualify nurses for state registration, in order to ascertain just what opportunity is given the pupils for practical and theoretical experience.

The Massachusetts State Nurses' Association is presenting a bill which embodies the recommendation that the board is making to the Public Health Committee. Dr. W. P. Bowers, secretary of the board, and president of the Massachusetts Medical Society, is going to present the nurses' bill at the same time the report is presented. Letters have been sent to superintendents of some of the largest hospitals and to several nurse superintendents of smaller hospitals in different parts of the state asking for endorsment or criticism of the bill which is to be presented. The replies have all been in favor of such an inspector. All honest schools are willing to be visited, and many are not only willing but are anxious to have some one to refer to who represents the State Board of Examiners. Such a person could be of great assistance in showing where schools are weak and in helping to remedy deficiencies if they exist.

It is believed that the Russell Sage Foundation will, in the not distant future, make an investigation of training schools similar to what has been done in connection with medical schools, and Massachusetts would be wise to authorize its state board, which consists of doctors and nurses, to prepare the way for this more disinterested investigation.

It is hoped that the medical profession will give its hearty support to this bill, House No. 1186.

AN UNFORTUNATE DECISION.

THE United States Supreme Court has recently ruled that in prosecutions under the pure food and drugs act, the government must hereafter "prove the presence of added poisonous or deleterious substance *in quantities sufficient to injure health.*" This is an unfortunate decision and will have the effect of greatly increasing the difficulty of enforcing this law, since it will remove from the reach of punishment such adulterations as, though perhaps harmless to health, are nevertheless frauds perpetrated upon an unsuspecting, unprotected, and defenceless public.

DEATH OF DR. ROTCH.

THE medical profession of Boston have suffered a great loss in the death, on Monday evening, March 9, of Dr. Thomas Morgan Rotch, professor of pediatrics in the Harvard Medical School. Dr. Rotch was not only of international eminence in his specialty, but was beloved in many families whose children he had cared for, and by many who gratefully remember, in their childhood, his always kind and pleasant personality as their physician.

MEDICAL NOTES.

A CASE OF SMALLPOX AT PITTSBURGH.—A case of smallpox was discovered on Feb. 28 among a

trainload of 300 immigrants at Pittsburgh, Pa. The patient was taken to the municipal hospital and all the passengers and train-crew were vaccinated.

HOSPITAL BEQUEST.—The will of the late Wilson D. Kistler, of Lock Haven, Pa., it was announced on Feb. 25, contains a bequest of $30,000 to the local hospital.

BOSTON AND NEW ENGLAND.

POLIOMYELITIS IN MASSACHUSETTS.—During the month of January, 1914, 14 cases of poliomyelitis were reported in Massachusetts, 4 of them being in Boston.

TONSILLITIS IN WAKEFIELD.—During the past fortnight there has been prevalent in Wakefield, Mass., a local epidemic of streptococcus tonsillitis, similar to those which of recent years seem to have become increasingly prevalent in Eastern municipalities and smaller communities. In Wakefield there have been about 400 cases, without fatalities. The milk and the water supply have both been decided to be not the source of the infection, which in this case, as is probably usually the fact, is considered to have been air-borne.

SCARLET FEVER IN BRIDGEWATER.—During the past three weeks scarlet fever has been epidemic at Bridgewater, Mass., where 25 cases of the disease have been reported. Local schools and places of public assembly have been ordered closed until March 17.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.—At the annual meeting of the Boston Instructive District Nursing Association, held last week in this city, Miss Mary Beard, as director, presented her annual report in part as follows, describing the work of the Association for the previous year.

"For the year ending Jan. 31, the receipts for the general work of the Association were $72,180.47, and $61,718.58 was expended. Legacies amounting to $900 have been received for the permanent fund, together with donations amounting to $3,131.82. A legacy of $2500 was made to the reserve fund.

"Three new nurses were added to the staff Feb. 6, 1913. We have now 49 salaried nurses, 2 domestic educators (visiting housekeepers), 5 hospital pupils, and 20 students. Last year at this time there were 43 salaried nurses, 5 hospital pupils and 19 students.

"The greatest change in the staff has come through the gradual accomplishment of a plan adopted two years ago—that of acquiring a permanent staff rather than temporary nurses who changed from time to time. In this way 22 permanent staff nurses have been added since February, 1912, and 16 of the 22 since last February. This is the most important change which has occurred this year. All these nurses are graduates of one or the other of our courses in public health nursing, that is, they are women who want to do this sort of nursing more than any other work, are full of enthusiasm and have made sacrifices to obtain a special education for it. The supervisors have been longer in their positions and the machinery of the stations is running more smoothly—all of which means less fatigue and more efficiency.

"During the year we have had 10,536 new patients and made 120,597 visits, 600 more patients than a year ago and 10,000 more visits. One-half of these are free patients. Many of these 5000 free patients are 'free' patients only because illness in the family was the one last expense impossible to meet. Among them there have been a good many real 'problem cases,' known to many agencies and helped by them. Twenty per cent. were life insurance company patients, 2 1-3% paid 50 cents, 5 1-10% paid 25 cents, 17 1-10% paid less than 25 cents, 47 1-3% paid nothing. We nursed 3183 Boston Dispensary patients, or 30 1-5% of the whole."

PUBLIC NURSES UNDER CIVIL SERVICE.—By a new ruling, made as a result of a movement initiated last fall by the Boston Milk and Baby Hygiene Association, all nurses employed by boards of health and school boards in Massachusetts have been placed under civil service rules, except in Boston, where they are governed by a special act of the legislature.

MEDICAL BEQUESTS.—The will of the late Rebecca Warren Brown, of Boston, which was filed recently for probate, contains a bequest of $10,000 to Harvard University, to be applied to the fund, created by Dr. Buckminster Brown, brother of the testatrix, for a professorship in orthopedic surgery. The residue of the estate is left in equal shares to the Perkins Institution for the Blind and the Industrial School for Crippled and Deformed Children.

NEW YORK.

EUGENIC MARRIAGE BILL.—Report from Albany states that on Feb. 26 a eugenic marriage bill was introduced before the State Assembly. The bill requires that to obtain a marriage license the applicant must present a physician's certificate that the former is "free from phys-

ical or mental disease likely to be contagious or hereditary."

REPORT OF NEW YORK MILK COMMITTEE.—The seventh annual report of the New York Milk Committee, published on Feb. 26, shows that during the seven years from 1907 to 1913, inclusive, 950,000 babies were born in New York City.

"If the infant death-rate of the five years previous had prevailed there would have been 150,000 infant deaths instead of the 109,000 which actually occurred. On the other hand, if New York's low death-rate of 1913, *i.e.*, 101.9 per 1000 births, had prevailed throughout the seven-year period, only 96,000 babies would have died out of the 950,000 born. The committee points out that this record is not due to favorable weather conditions nor to other general accidental causes. Returns from the larger cities throughout the country, for 1913, published in tabular form in this report, show that while New York made a further reduction in 1913 in the actual number of deaths over its low record of 1912, Chicago, Philadelphia, Cleveland, St. Louis, Pittsburgh, Detroit, Buffalo, New Orleans and Toledo all show an increase."

MENINGITIS ABOARD A GREEK STEAMER.—Four cases of cerebrospinal meningitis have recently developed on board the Greek steamer *Athenae*, which was detained on its arrival at this port on Feb. 28.

REPORT OF THE ST. LAWRENCE STATE HOSPITAL.—The recently published twenty-seventh annual report of the board of managers of the St. Lawrence State Hospital, at Ogdensburg, N. Y., to the State Hospital Commission, records the work of that institution for the year ended Sept. 30, 1913. During this period the total number of patients under treatment was 2294, of whom 1074 were men and 1220 women. There were 152 patients who died, upon 98 of whom autopsies were performed. The course in the training school has been lengthened to three years, on account of which no class was graduated this year.

NEW YORK DEATH-RATE.—There were 1812 deaths, or a death-rate of 16.93 per thousand of the population, reported during the week ending Feb. 28, 1914, against 1699 deaths, and a rate of 16.50, in the corresponding week of 1913, an absolute increase of 113 deaths and an increase of .43 of a point in the rate, equivalent to a relative increase of 46 deaths. The following causes showed a decreased mortality: Diarheal diseases, bronchitis, broncho-pneumonia, all other forms of tuberculosis, and Bright's disease of the kidneys. The mortality from measles, whooping cough and lobar pneumonia were approximately the same as that of the corresponding week of last year. The following causes showed material increases: Scarlet fever, diphtheria and croup, typhoid fever, cerebrospinal meningitis, influenza, diseases of the digestive system other than diarrheal diseases, diseases of the nervous system and organic heart diseases, the increased mortality of the last mentioned being more than that of the sum of all other causes.

The number of children dying under one year of age was exactly the same as that of last year; that of children under five years showed a slight decreasse; at all other age groups the mortality was greater, especially among the extremely aged.

The death-rate for the first nine weeks of 1914 was 15.00 per one thousand of the population as against the rate of 15.47 for the corresponding period of 1913, a decrease of .30 of a point.

Current Literature

MEDICAL RECORD.

FEBRUARY 21, 1914.

1. *CONNER, L. A. *Intravenous Injections of Sodium Salicylate in the Treatment of Rheumatic Affections.*
2. MCMURTRIE, D. C. *A Study of Prostitution in Europe.*
3. OPPENHEIMER, S. *The Surgical Anatomy, Diagnosis and Treatment of the Inflammatory Affections of the Nasal Accessory Sinuses in Children.*
4. SWIFT, G. M. *Carditis.*
5. HOLDING, A. F. *Technic in Radiotherapy, with Especial Reference to Deep Therapy as Practised at Freiburg by Krönig and Gauss.*
6. TANENBAUM, S. A. *A Consideration of Objections to Psychanalysis.*
7. OLMSTEAD, M. P. *The Value of Absorption Methods in the Wassermann Test.*

1. Conner discusses the merits of the intravenous method of administering salicylate of sodium in rheumatic infection. He says that the analgesic effect of the drug is more pronounced when given in this way, provided that the technic is correct and the preparation pure. The method is safe, painless and easy. Its application will probably be limited, but it offers something in cases where salicylate is not well borne by the stomach, where the ordinary method does not produce results, in cases with beginning heart involvement, and in rheumatic conditions of the eye. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

FEBRUARY 14, 1914.

1. COLE, L. G. *The Positive and Negative Diagnosis of Gastric Cancer by Means of Serial Roentgenography.*
2. KEILTY, R. A. *Note on Some Aneurysms.*
3. TURCK, R. C. *Intestinal Resection.*
4. WALTER, W. *Some Scientific Aspects of Inoculation Therapy.*
5. STEWART, F. E. *Besredka's Sensitized Vaccines.*
6. YEOMANS, F. C. *Amebic Dysentery.*
7. FREESE, E. M. *Magnesium Sulphate and Glycerine in the Treatment of Infections.*
8. WEISS, J. *Two Remarkable Cases of Obesity.*
9. WOODBURY, M. S. *The Technic of Outlining the Thyroid Gland.*
10. HEDIN, S. G. *Colloidal Reactions and Their Relations to Biology.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

FEBRUARY 14, 1914.

1. *VEDDER, E. B. *Origin and Present Status of the Emetin Treatment of Amebic Dysentery.*
2. *STURMDORF, A. *The Functional Metrorrhagias. Their Nature and Control.*
3. BEESON, B. B. *Neosalvarsan from the French Point of View.*
4. *NICHOLSON, S. T., JR., AND HOGAN, J. F. *Effect of Lactic Acid Bacilli on Diphtheria.*
5. KAPLAN, D. M., AND MCCLELLAND, J. E. *The Precipitation of Colloidal Gold. A Specific Reaction in the Spinal Fluid.*
6. ROBINSON, C. J., AND MUELLER, J. H. *An Improved Technic for the Doremus-Hinds Ureometer.*
7. BUNTING, C. H., AND YATES, J. L. *An Etiologic Study of Hodgkin's Disease. Second Note.*
8. WEISENBACH, R. R. D. *The Correction of the Fixed Structural Type of the Spinal Lateral Curvature.*
9. SMITH, O. C. *Hygroma Cysticum Colli and Hygroma Axillae.*
10. WACHT, D. T. *Action of the Nitrites on the Isolated Surviving Pulmonary Artery. Preliminary Note.*
11. BARACH, J. H. *The Energy Index. Cardiovascular Energy as Indicated by the Arterial Pressure per Minute.*
12. BERKOWITZ, M. E. *The Practical Side of Deratization with Flue-Gas, with Special Reference to the Port of Philadelphia.*
13. DONNELLY, W. H. *Basic Fuchsin in Surgery. Its Wide Range of Usefulness.*
14. FAUGHT, F. A. *Significance of Elevated Blood-Pressure in Pregnancy.*
15. MCNEIL, H. L. *Experiences with Noguchi's Luetin Test for Syphilis.*
16. WALKUP, J. O. *Hemorrhagic Hypernephritis, with Report of Case.*
17. VOGEL, K. B., AND LEE, O. I. *Detection of Mercury in the Excretions.*
18. MCCASKEY, G. W. *A Case of Amebic Dysentery of Thirteen Years' Duration Cured by Emetin Hydrochlorid.*
19. BEEKMAN, F. *A Case of Mercuric Chlorid Poisoning Due to Vaginal Douches.*
20. HOLMES, A. O. *Defaced Type of Addison's Disease.*

1. Vedder claims emetin is a true specific in amebic dysentery and hepatitis, and the results obtained compare favorably with those of salvarsan in syphilis. The hypodermic use of the hydrochlorid is the preferred method and McCaskey reports the cure of a case of thirteen years' standing in this way.

2. Sturmdorf condemns the use of ergot in the functional metrorrhagias and advises the use of vaso-dilators, such as aconite, nitroglycerin and atropin, under the guidance of a pressure apparatus, and with the aid of opium.

4. The authors find a spray of live lactic acid bacilli valuable in diphtheria. The course of the disease seems shortened and no ill effects result. [E. H. R.]

FEBRUARY 21, 1914.

1. VAUGHAN, V. C. *The Phenomena of Infection.*
2. RODMAN, W. L. *Gastric Tetany.*
3. POST, W. E. *The Effect of Tartrates on the Human Kidney.*
4. MILNE, L. S. *Chronic Arthritis.*
5. SCHMITTER, F. *Hydrophobia in a Wild Philippine Monkey.*
6. *BALL, C. F. *Abderhalden Serodiagnosis of Cancer, with a Tabulation of Results Obtained in Fifty Examinations.*
7. *LEWIS, D. D., AND DAVIS, C. B. *Repair of Tendons by Fascial Transplantation.*
8. CLIMENKO, H., AND FELBERBAUM, D. *The Diagnosis of Spinal Cord Tumors, with Report of Two Cases.*
9. *GAYLER, W. C. *The Dorsal Position During the Puerperium as a Cause of Retroversio Uteri.*
10. THOMAS, B. A., AND MOORHEAD, S. W. *Severe Cutaneous Eruption Following Neosalvarsan. Report of Two Cases.*
11. INGALS, E. F., AND FRIEDBERG, S. A. *Fluoroscopic Bronchoscopy. Report of Case.*
12. LESZYNSKY, W. M. *Traumatic Epilepsy. Report of a Case of Five Years' Duration Cured by Surgical Treatment.*
13. WELTY, C. F. *Anastomosis of the Facial and Hypoglossal Nerves for Facial Paralysis.*
14. LUND, F. B. *Comminuted Gunshot Fracture of the Femur, with Fixation by Bone-Plate and Wires.*

6. Ball's article is very thorough and gives in detail the steps of the technic.

7. This is an interesting bit of work on fascial transplants.

9. Gayler is firmly of the opinion that the dorsal position during the puerperium is a large factor in the causation of retroversion of the uterus. His argument is convincing. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

FEBRUARY, 1914.

1. *DAVIS, D. M. *Intestinal Obstruction: Formation and Absorption of Toxin.*
2. *DAVIS, D. M. *Natural Immunity of Animals Against Poison of Intestinal Obstruction.*
3. MILLER, W. S. *Niels Stensen.*
4. PEARCE, R. M. *A Brief Historical Sketch of Some of the Early Studies of the Finer Structure of Plant and Animal Tissues.*
5. MCMURTRIE, D. C. *Early History of the Care and Treatment of Cripples.*

1. Davis shows that the duodenal and upper jejunal mucosa, unaided by bacterial action, can produce a highly toxic substance, although the conditions may be not far removed from normal. He describes in detail the experiments which led to this conclusion.

2. This second paper by Davis describes the effects of inoculating animals with the highly toxic substance mentioned in the preceding article, and unsuccessful attempts to neutralize this poison. [J. B. H.]

THE LANCET.

JANUARY 24, 1914.

1. *EMERY, W. D'E. *The Pathology of Syphilis, Especially in Its Bearing on Treatment.*

2. HAWTHORNE, C. O. *Dosage: Some Suggested Amendments in the Manner of Stating the Doses of Medicines in the British Pharmacopoeia.*
3. *WILLAN, R. J. *The Bismuth Ureteral Catheter. Collargol Solution and Barium Sulphate Suspension in the Diagnosis of Some Urinary Diseases.*
4. MANN, G. *Protein Metabolism During Starvation and after the Administration of Milk Protein.*
5. HARDINN, H. G. A. *The Toleration of Arsenic by the Human System.*

1. In this short paper Emery discusses the pathology of syphilis, the causative organism, the invasion of the blood by spirochaetes, the processes in the secondary period, the Wassermann reaction, the action of drugs and other points. He considers what is called parasyphilis and takes up the curability of the disease, syphilis, in its various stages.

3. In an article illustrated with some excellent plates, Willan describes the catheterization of the ureters with the bismuth ureteral catheter in which he uses collargol solution. [J. B. H.]

JANUARY 31, 1914.

1. *BOSANQUET, W. C. *Tuberculosis as an Infective Disease.*
2. *LETT, H. *The Present Position of Acute Appendicitis and Its Complications.*
3. HOWELL, C. M. H. *Trauma in Relation to Certain Aspects of Nervous Disease.*
4. *LECKIE, R. J. B. *The Percutaneous Tuberculin Reaction.*
5. PORTER, W. G. *A Case of Post-operative Osteomyelitis of the Frontal Bone. Recovery after Wide Removal of the Diseased Bone.*
6. NEGUS, V. E. *A Case of Acute Tetanus with Recovery.*
7. HORDER, T. J. *Vaccines from the Standpoint of the Physician.*

1. In this paper, Bosanquet discusses the organism of tuberculosis, bovine and human, the modes of infection, causes of disease in later life, the incidence of tuberculosis, the forms of disease, and the methods of resisting it, and the decline of tuberculosis mortality and its causes.

2. This is a clinical paper discussing appendicitis, forms and complications, mortality in regard to time of operation, when to operate, etc. It presents nothing new.

4. Leckie presents data to show that the percutaneous tuberculin reaction (Moro ointment test) is of little or no value. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JANUARY 17, 1914.

1. *MITCHELL, A. P. *The Infection of Children with the Bovine Tubercle Bacillus.*
2. *ROBINSON, W. *Torn Semilunar Cartilages.*
3. MORT, S. *A Possible Fallacy in the Diagnosis of Internal Derangements of the Knee-joint.*
4. HUGHES, B. *The Treatment of Fractures about the Elbow-joint and Knee-joint.*
5. CONNELL, R. *The Use of Ionic Medication in the Treatment of Certain Venereal Diseases.*
6. JARDINE, R. *Rapid Delivery in Eclampsia.*

1. Mitchell in this paper discusses (*a*) technic, (*b*) relationship of clinical data and milk supply, (*c*) relation between channels of infection and groups of glands involved, and (*d*) channels of infection. Under technic he describes his methods of studying 72 consecutive cases of tuberculous cervical glands in children; this part of the paper is very technical, describing variations in growth of the different strains of bacilli, differences between human and bovine types, culture media, etc. In the next part of his paper he describes his results. Of these 72 cases, 65, 90%, were due to the bovine bacillus, and 7 cases, 10%, to the human organism. As to age incidence, he comes to the natural conclusion that the use of unsterilized cows' milk is responsible for the large number of cases due to bovine origin in the very young children, 84% of whom were bottle fed. He could not find that one type of child was liable to this disease. There was seldom any interference with general health, many being in robust health. In only 3 instances could family exposure or a family history be obtained. He goes on to show the very large amount of tuberculosis among cattle in and around Edinburgh and urges more efficient legislation on the subject. He then considers the channels of infection and describes the groups of glands involved. In his experience there are two types of glands involved, one those showing little or no tendency to break down; and the other, those in which caseo-necrotic changes are the distinctive features. He believes the mouth and the naso-pharynx to be the avenues of infection. Out of 64 cases of tuberculous cervical adenitis, in 37.5% lesions of the tonsils were evident. His conclusions are sane and sound.

2. Robinson in a short paper discusses the anatomy, mode of production, diagnosis and treatment of torn semilunar cartilages, and describes 24 cases. [J. B. H.]

JANUARY 24, 1914.

ADDRESSES ON CHRONIC INTESTINAL STASIS.

1. ADAMI, J. G. *"Autointoxication" and Subinfection.*
2. *PRINGLE, S. S. *Anatomy and Treatment.*
3. GRAY, H. M. W. *Etiology and Treatment.*
4. CHAPPLE, H. *Effects on the Female Generative Organs.*

1. In this paper Adami combats strongly the well-known views of Arbuthnot Lane on auto-intoxication, etc., concluding that it is more rational to regard the evil effects of intestinal stasis as a low form of infection than as a chronic intoxication. He believes the term gastro-intestinal auto-intoxication to be a much abused one, which should be dropped. Many of the symptoms attributed by Lane to intestinal stasis may arise from other causes, and therefore, before recommending the operation of short circuiting fullest investigation should be made. Usually other causes will be found which will render this unnecessary. (This is a timely article and a much needed one.—J. B. H.)

2. Pringle considers the various anatomical abnormalities which may cause stasis, such as ptosis, bands, folds, membranes, etc. These he describes in some detail. He takes up the symptoms, toxic and obstructive. Under treatment he considers prophylaxis, medical and surgical measures. [J. B. H]

JANUARY 31, 1914.

1. BLAND-SUTTON, J. *Linitis Plastica, or Leather Bottle Stomach.*
2. O'CONNOR, J. *Two Years' Operating to the Clock.*
3. BARRATT, J. O. W., AND YORKE, W. *The Production of General Symptoms in Hemoglobinemia.*
4. ROLLESTON, H. D. *A Case of Eosinophile Arcitis; with Remarks.*
5. SAUNDLY, R. *Syphilitic Paresis of the Esophagus.*
6. ALDONS, G. F. *The Importance of a Leucocyte Count in Doubtful Cases of Appendicitis.*
7. DRUMMOND, H. *Observations on the Functions of the Colon, with Special Reference to the Movements of Enemata.*
8. COPE, V. C. *The Pre-Peritonitic Stage of Acute Appendicitis.*

9. HENDERSON, J. B. *Alternative Methods of Treating the Appendix Stump.*
10. HUGHES, B. *Appendicitis, with Symptoms Resembling Those of Renal Colic.*

EDINBURGH MEDICAL JOURNAL.

FEBRUARY, 1914.

1. *BÉRANECK, E. *Tuberculin: The Rationale of Its Use; Its Possibilities and Limitations.*
2. RITCHIE, J. *Neurasthenia.*
3. *WATSON, D. C. *Manifestations and Treatment of Intestinal Toxemia.*
4. GUTHRIE, D. J. *On the Neosalvarsan Treatment of Syphilis.*
5. CRESWELL, C. H. *The Royal College of Surgeons of Edinburgh; Anatomy in the Early Days.*
6. *MILLER, J. *The Prevalence of Living Tubercle in Edinburgh Milk.*

1. This article describes in considerable detail the complex subject of the rationale of tuberculin therapy. The writer devotes considerable space to the preparation of that form of tuberculin with which his name is connected and describes experiments to substantiate his claims. He is of the opinion that tuberculin should be regarded as *a curative*, and not an immunizing agent. He describes the methods of administering his tuberculin as to dosage, etc. He urges early tuberculin treatment as soon as the diagnosis is established, ruling out, of course, all acute advanced cases.

2. This is a short general clinical article on the prevention and cure of certain forms of nervous exhaustion coming under the general term neurasthenia. There is much sound common sense advice in this paper.

3. In a long paper Watson takes up the pathological basis for intestinal toxemia as shown by constipation, catarrh of the large bowel, dilatation, adhesions, kinks, etc. He considers the factors regulating normal intestinal functions and evidence of normal functioning as shown in the stools and urine. He devotes much space to the diagnosis of intestinal stasis, as shown by x-rays, and takes up briefly the clinical conditions induced by intestinal toxemia, such as those under the neurasthenic group, the rheumatoid group and the dyspeptic group. He describes briefly the so-called Lane's kink, Jackson's membrane, and various other kinks and malformations.

6. Miller confirms the work of Fraser and Mitchell, and explains the large amount of bovine tuberculosis in Edinburgh by analyzing samples of milk in that district, in 13% of which (104 samples) he found live tubercle bacilli. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 4. JANUARY 27, 1914.

1. ROLLY, F., AND DAVID, H. *Overproduction of Sugar in Relation to the Etiology of Human Diabetes.*
2. V. FUNK, F. *Retroduodenal or Transduodenal Choledochotomy.*
3. *JAFFÉ, R. *Autopsy Findings and Animal Experiments in Benzin Poisoning.*
4. *SIMMONDS, M. *Secondary Hypophyseal Tumors and Their Relation to Diabetes Insipidus.*
5. WEBER, F. *Tamponade in Pregnancy and Gynecology.*
6. FREY, E. K. *The Origin and Treatment of Fistula Ani.*
7. KLAUS, H. *"Narkophin" in Pregnancy.*
8. SCHOENLANK, W. *Experiments in Artificial Pneumothorax.*
9. LÖWENTHAL, S., AND PAGENSTECHER, A. *Intensive or Continuous Treatment by Rays?*
10. FUCHS, A. *Animal Experiments with "Tubural."*
11. KREUTER. *Perineal Enucleation of the Prostate.*
12. HOFFMANN. *Potassium Chloride in the Treatment of Hay Fever.*
13. GRUBER, K. *Thinking Animals.*
14. *Edwin Klebs. (To be concluded.)*
15. NEISSER, M. *The Murder Trial of Hopf.*

3. Jaffé reports the histological changes found in various cases of fatal benzin poisoning. These observations were confirmed by a series of experiments in which animals were killed with benzin introduced either intravenously or by mouth. The poisoning is either acute or chronic, depending on rapidity of absorption. In acute cases the drug is excreted through the lungs, producing characteristic minute hemorrhage; in cases of chronic poisoning it causes degenerative foci in the liver and kidneys. No chemical changes or evidences of hemolysis were found in the blood. The lesions in both man and animals were essentially similar.

The practical significance of this study is that since benzin is taken up from the intestines slowly, active purgation is always recommended as a therapeutic means.

4. Simmonds reports three examples of secondary tumors in the hypophysis which appeared to produce symptoms of diabetes insipidus. He has seen six other cases, however, with lesions through the entire hypophysis where there was no polyuria.

The literature on the subject points to the belief that hypophyseal destruction and diabetes insipidus are closely related. Despite his latter findings, Simmonds does not consider this disproven.

He concludes that hypophyseal metastases are relatively common in malignant disease and believes that polyuria may be an early symptom of this peculiar lesion. [R. F.]

Correspondence.

RECIPROCITY.

SAN FRANCISCO, Jan. 29, 1914.

Mr. Editor: I am enclosing a letter from Doctor Alderson who is a member of the California State Board of Medical Examiners, in reply to a letter I wrote to him asking why the medical license of Massachusetts was not accepted by the California State Board.

I thought perhaps it might be a weapon which you could use to effect a change in Massachusetts requirements, for you know that all the men coming out to California at least, cannot have reciprocity with Massachusetts. Fortunately I had an Ohio license which procured affiliation for me.

Hoping that this enclosure may be of some use, I am

Yours sincerely,

WILLIAM PALMER LUCAS, M.D.,
Professor of Pediatrics,
University of California.

[ENCLOSURE.]

SAN FRANCISCO, Jan. 6, 1914.

My dear Dr. Lucas: In reply to your inquiry regarding the status of Massachusetts State Medical licenses, I beg to state that the California State Board of Medical Examiners has refused to grant reciprocity licenses to applicants presenting Massachusetts State licenses. The reason for this unfortunate state of affairs is that Massachusetts does not

require an M.D. degree of applicants who come up for examinations for licenses.

Regretting very much that this is the case, I am

Cordially yours,

HARRY E. ALDERSON, M.D.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING FEB. 28, 1914.

February 20, Medical Director C. F. Stokes, detached from Bureau of Medicine and Surgery, Navy Department, and ordered to command Naval Hospital, Philadelphia, Pa.

Medical Inspector G. A. Lung, detached from command of naval hospital, Philadelphia, Pa., and ordered to Naval Training Station, Newport, R. I.

Surgeon J. F. Leys, detached from Naval Training station, Newport, R. I., and ordered to duty in connection with the fitting out of the *New York* and to duty on board when that vessel is placed in commission.

Medical Inspector L. W. Spratling, detached from Naval Recruiting Station, Atlanta, Ga., and ordered to duty as fleet Surgeon of Atlantic Fleet, *Wyoming*.

P. A. Surgeon C. E. Strite, ordered to the Naval Recruiting Station, Atlanta, Ga.

Surgeon H. D. Wilson, detached from the Naval Recruiting Station, Boston, Mass, and ordered to the *New Jersey*.

Assist. Surgeon E. P. Halton, ordered to Naval Recruiting Station, Boston, Mass.

February 24, Surgeon R. F. Sheehan, detached from marine advance base brigade of Atlantic Fleet to home and wait orders.

P. A. Surgeon J. P. Haynes, ordered to the Naval Training Station, Great Lakes, Ill.

P. A. Surgeon E. L. Woods, detached from the Naval Proving Grounds, Indian Head, Md., directed to wait orders.

Feb. 26, P. A. Surgeon H. L. Dollard, detached from the *North Dakota* and ordered to the Naval Hospital, New York for treatment.

P. A. Surgeon P.R. Stalnaker, ordered to the *North Dakota*.

MASSACHUSETTS GENERAL HOSPITAL.

SURGICAL MEETING.

A surgical meeting open to the medical profession will be held at 8.15 p. m. on March 13, 1914, in the lower amphitheatre of the Out-patient Department. Entrance on either Blossom or Fruit Streets.

Dr. G. W. W. Brewster will present "Report on Cases of Pelvic Inflammation."

Dr. Lincoln Davis will present "Report on Cases of Renal Surgery."

FRANKLIN COUNTY DISTRICT MEDICAL SOCIETY.

The bi-monthly meeting of the society was held in Greenfield, January 13th. A letter was read with reference to a bill now before the legislature regarding the revelation of professional secrets in court on the part of physicians and nurses. The suggestion offered was that the words "not be urged" should be changed to "not be compelled." Dr. G. P. Twitchell of Greenfield read a paper on the Treatment of Gastric Ulcer. The paper was discussed by Drs. H. G. Stetson and Charles F. Canedy of Greenfield and by Dr. Philbrick of Northfield. Dr. Paul W. Goldsbury of Warwick read a paper on Observations on the Sense of Smell and gave a demonstration.

SOCIETY NOTICES.

THE HARVEY LECTURE.—The tenth lecture will be delivered on Saturday, March 14, at 8.30 p. m., at the New York Academy of Medicine, 17 West 43d Street, by Prof. W. T. Halsted, of Johns Hopkins University.

Subject: "The Significance of the Thymus Gland in Graves' Disease."

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, March 17, 1914, in the amphitheatre of the Administration Building of the Harvard Medical School, at 8.15 o'clock.

Program:

Dr. Otto Folin and Dr. W. Dennis: "An Interpretation of Creatine and Creatinine in Relation to Animal Metabolism." (20 minutes.).

Dr. L. W. Hackett: "A New Air Filter." (20 minutes.)

Dr. H. T. Karsner, Mr. H. H. Amiral and Mr. A. V. Bock: "A Study of the Influence of Splenectomy on Hemopsonins in the Blood and in Various Organ Extracts." (15 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Surgical section meeting, John Ware Hall, Wednesday, March 18, 1914, at 8.15 p. m.

"Brain Tumors," Dr. E. H. Nichols. Discussion by Drs. P. C. Knapp, J. J. Thomas and E. W. Taylor.

Light refreshments after the meeting.

FRED B. LUND, M.D., *Chairman*.
HORACE BINNEY, M.D., *Secretary*.

RECENT DEATHS.

DR. LAZARUS SCHONEY, who died on Feb. 18 in Coney Island, N. Y., was born at Budapest, Hungary, in 1838. He studied medicine at Prague, and, after coming to the United States in 1860, at the University of Pennsylvania. He served during the Civil War as a surgeon in the Union army, and subsequently was pathologist for a time at the Lincoln General Hospital, Washington. In 1868 he settled in the practise of his profession at New York City. He became professor of pathology in the New York Medical College, and was the author of several works on pathology and biology. He is survived by his widow.

DR. JOHN FREDERICK WELCH, who died on Feb. 23 in Quincy, Mass., was born at Boston in 1854. He received the degree of M.D. in 1880 from Bellevue Hospital Medical School, New York. He immediately settled in the practise of his profession at Quincy, where he was for several years city physician and member of the local board of health. He was a Fellow of The Massachusetts Medical Society, a member of the Norfolk South Medical Society, and president of the Quincy Medical Club. He was consulting physician and secretary of the Quincy Hospital. He is survived by his widow, one daughter, and a son.

DR. IRA HOPKINS of Utica, N. Y., died on Feb. 23, at the age of 80 years. He was graduated from the medical department of the University of Buffalo in 1859.

DR. ANNA MARLIN CORNWALL, who died on March 1, at Brookline, Mass., received the degree of M.D. in 1906 from the Tufts Medical School. She was a Fellow of The Massachusetts Medical Society.

DR. FRANK SARGENT GRANT, of New York, a graduate of the College of Physicians and Surgeons in 1875, died on March 3.

DR. JOHN PRINGLE, of East Newark, N. J., died from pneumonia on February 25, at the age of 68. He was a native of Glasgow, Scotland, and was graduated from the University of Glasgow in 1875. Dr. Pringle had been president of the East Newark Board of Health since its organization a few years ago.

Original Articles.

NOTES ON THE NEW COOLIDGE X-RAY TUBE.

By H. W. Van Allen, M.D., Springfield, Mass.

The ability of any mechanical device to be useful is limited to the ability of the weakest part to withstand the strain put upon it. When we are dependent upon such a mechanical device for medical deduction it is self-evident that the medical information is limited in the same way. It has been a well known fact to Roentgenologists for some time that the weakest part in our equipment has been the tube. The exciting apparatus has been gradually increased in efficiency until in the interruptless machine, as now made, we have electrical output enough to destroy the ordinary tube in a few seconds. The tube makers have tried to take care of this electrical bombardment by backing up the platinum target by large quantities of copper to absorb the heat generated. Again a step forward was the substitution of tungsten in the target for platinum. This was a valuable addition as the melting point of tungsten is some 2,000 degrees, Fahrenheit, higher than platinum; therefore it withstands the impact of the cathode ray much better. Here seemed to come the limit, however. The various makers claimed certain points of superiority but the advantages were minor and all tubes had the same limitation.

It has been left for Dr. W. D. Coolidge to solve the problem in a most efficient way. For two years past experimental work has been carried on which has resulted in a new type of tube dependent upon entirely new principles. While Dr. Coolidge does not believe the tube is beyond improvement he feels clinical experience is now needed to obtain from the actual workers practical suggestions. To this end a half dozen of these tubes have been placed in the x-ray laboratories of physicians.

Besides Dr. Coolidge's original article in the *Physical Review* many of the scientific journals have published extensive papers on this new tube from which the daily press has printed more or less distorted reports. My object in presenting this short paper is that the readers of the Journal may know from a medical standpoint what those of us who are actually using the tube are expecting.

In all tubes the x-ray is produced by the cathode stream striking the anode, or target, from which is given off the wave energy called the x-ray. This cathode stream must be excited by bombardment of the cathode. In the old tube these were positive ions carried across by the small quantity of contained air in the tube. It was the variations in the quantity, character and position of this remaining air that made the character of the tube so unstable. The heavy target absorbed the air only to give it off in action, when heated by the bombardment of the cathode stream. Thus a tube would never be found of the same character at different times. When one realizes that only one condition of the tube fits a given requirement and the tube is constantly changing the problem has been not to get the best radiograph but to get as good as such varying conditions will allow.

With the Coolidge tube all this is changed. In general shape it is the same as the old style. The vacuum is as perfect as can be made, a thousand times greater than the old type. This being the condition not even the highest tension current will pass from cathode to anode. To overcome this a filament of tungsten has been placed in the cathode, connected by two low tension insulated wires through the cathode stem to a storage battery. The whole is so placed as to be insulated for high tension currents from the ground. The high tension current is connected to either of the low tension wires so it may be passed along to the cathode, while the anode is connected to the other high tension terminal. Until the battery current is completed and the filament lighted, no high tension current will pass. When the filament is lighted, however, current passes freely, the electrons coming from the heated filament. The penetration of the tube is dependent upon the rapidity of the electric discharge from the filament. This discharge is controlled by the heat in the wire which can be varied by a rheostat introduced into the battery circuit, so at will we can change to any penetration by merely moving a rheostat handle. Moreover, we have no particles of air to come out of the heated target and change the conditions of the tube. We have no secondary rays to heat the glass and decrease the clearness of the shadow. A tube of this kind can run continuously with a current that would ruin the ordinary tube in half a minute. Consider then the tremendous output of such a tube for treatment work. Filters placed in the path of the Roentgen ray will take the emanations not desired in a given case and still there is abundant capacity remaining. This together with the cross-fire technique makes therapy of internal diseases equally efficacious to that of the body surface. With such an instrument in our hands we have an opportunity for exactness never before thought possible by the Roentgenologist. Radiographs for stereoscopic work may have exactly the same character. Particularly brilliant plates may be exactly duplicated in future cases, because the various elements involved in the operation have become susceptible of exact measurements and control. The one thing we have needed so badly has arrived, and in a form that seems to me particularly free from objectionable characteristics.

SOME TRAGIC ASPECTS OF WHOOPING-COUGH.*

BY PHILIP H. SYLVESTER, M. D., NEWTON, MASS.

THE death of a child from any cause is a tragedy—but we are liable to lose sight of that fact in the sudden, unexpected, or dramatic death of an unusual case. Whooping-cough with a mortality of approximately 7 per cent., and a toll of ten thousand in the United States annually[1], presents an appalling contrast to the layman's, and the average physician's, conception of its harmlessness.

To you, as pediatricians, it is hardly necessary for me to speak in detail of the pathology of the disease; the causes of death in our usual experience are briefly, exhaustion, pneumonia, bronchopneumonia, cardiac, and terminal tuberculosis. The cases which I am about to describe are of interest owing to their unusual type and an argument for an efficient treatment of, as well as prophylaxis against, the disease. Inasmuch as six of the eight cases to be reported were much alike I will save your time by describing only one of these.

CASE 1. Marian R. Age 2 years.

F. H. Third child of well parents; two older children well except for last stage of whooping-cough.

P. H. Full term, transverse position, delivered by version. Received an intra-capsular fracture of the left humerus which healed with no deformity. Was breast fed for nine months, then various mixtures. Did perfectly well. Has always seemed a well, normal child.

P. I. Has been having whooping-cough for the last two weeks; has not been very sick. Last night about midnight had an unusually severe paroxysm, followed by a convulsion, seemed very feverish immediately after; has been delirious ever since and has had seven convulsions, has been stiff most of the time.

P. E. August 15, 1912, 10° after onset.

Well developed and nourished child, unconscious, rather cyanotic, breathing labored, much mucus in trachea; anterior fontanelle closed; pupils equal and do not react, are slightly dilated, occasional divergent strabismus; jaws are clenched; throat is clear except for large tonsils; there are a few large glands in the neck; the lungs are full of coarse rales and ronchi, no dullness or modified breath sounds; heart sounds regular, rapid, no murmurs, heart not enlarged; abdomen held rigidly; no täche; genitals negative. Extremities, except the left arm, in moderate spasm all the time, occasionally becoming more rigid in extension. Left arm flaccid, but is moved occasionally with waving motion, no elbow jerk. Knee jerks not exaggerated. Koernig not tried. No Babinski. Temperature 106; pulse 160; respirations 40. Lumbar puncture 45 c. c. clear fluid, considerable pressure, no clot in 12 hours. Cells 12 per c. m. m., largely lymphocytes and endothelial. Culture, no organisms in 48 hours.

Diagnosis. Cerebral hemorrhage.

* Read at a meeting of the New England Pediatric Society, Dec. 12, 1913.

FURTHER NOTES ON THE CASE.

August 17. Temperature persists. Has had eighteen convulsions since last visit. Signs unchanged except for retraction of head and stiffness of neck. Lumbar puncture, 60 c. c. faintly cloudy fiuid, clot in two hours. Noguchi +. Cell count 300, many endothelial, few mononuclear, many polynuclear; smear, no organisms seen. Culture sterile after 48 hours.

August 20. Acute symptoms persist. Had four convulsions yesterday, none today. Is still unconscious. Cries a great deal. Refuses all nourishment. Looks very badly. Stiffness and retraction of neck more marked. Pronounced täche cérébrale. Left arm flaccid, no elbow jerk. Other extremities spastic but in more or less constant motion. Knee jerks not obtained. No Koernig. Babinski present both sides. Lumbar puncture, 65c.c. *turbid* fiuid. Cell count not done. Clot in one hour, heavy. Tube clears on standing with about half an inch of sediment of polynuclears. Noguchi not done. Smear, no organisms seen. Culture, many staphylococci in 24 hours.

August 24. Seems a little stronger; still unconscious. Not so restless. Less rigidity. Temperature has gradually come down to 100, pulse 120. Swallows a little milk when put in mouth with spoon. Rigidity of other extremities and flaccidity of left arm persist. Babinski present on both sides. Lumbar puncture, 35 c. c. slightly turbid. Noguchi +. Clot in one hour. Cell count, 1,000 per c.m.m., all polynuclears. Culture, many staphylococci in 24 hours.

Child gradually got better but was still unconscious and presented moderate meningeal symptoms on September 15, 1912, when by lumbar puncture 15 c. c. clear fluid was obtained. Cell count 40, all mono-nuclears. Culture sterile.

Child remained unconscious for about five months from the onset, during which time it was fed by nasal tube; then gradually began to notice, to take food voluntarily and to have more or less coördinate actions.

It was seen again December 2, 1913, approximately a year and a half after the onset.

P. E. Poorly developed, fairly nourished. Seems fairly bright but is easily frightened. Mouth tends to remain open and the child drools constantly. Recognizes parents, brothers and neighbors and passing automobiles. Does not talk intelligibly, but indicates wants pretty clearly, and appears to understand when spoken to. It shows no paralysis although the left arm is soft, flabby, and a trifle smaller than the right; the elbow jerk is still absent and the child uses the arm very little but has all motions. Mother states that the child has eight to ten "contractions" in the arm daily; none noted during physical examination. Tries to walk when held up about as a child of ten or twelve months would do. Mentally is certainly not more advanced than the average child of two years.

CASE 2. Clarence E. Age 22 months.

F. H. Parents well. One brother has whooping-cough severely.

P. H. Full term, normal delivery, breast fed for three months, then various modifications of a proprietary food containing much starch and sugar. "Did fairly well." Has had frequent colds. Has

always been pale. Has been very slow in getting teeth. Does not walk. Talks very little.

P. I. Has been having whooping-cough (whooping) for two weeks; during the last week has had pretty severe paroxysms frequently; has vomited a good deal and has seemed a little feverish in the afternoons. Four days ago had a very severe paroxysm, followed by a convulsion lasting ten minutes, it is stated; has not seemed bright since.

Extremities have been stiff all the time but the left hand is frequently placed on the head. Has had a rectal temperature varying from 104 to 106 since shortly after the first convulsion. Yesterday and today the extremities have not been so stiff but have twitched a great deal. The child has looked badly and appears as if in pain, and has put the hand to left ear. Was seen by me to determine the question of otitis media.

P. E. Pale, under-sized child, fairly nourished, unconscious, a little cyanotic. Anterior fontanelle half an inch in diameter seems tense but not definitely bulging. Head is square. Ears negative. Eyes divergent, pupils widely dilated, do not react. Head retracted. Neck rigid. Throat clear. Six upper teeth, four lower, chalky.

Lungs full of coarse rales; much mucus in trachea; breathing is shallow and irregular.

Heart not enlarged; sounds very weak, very rapid, no murmurs made out.

Abdomen lax. Liver large, 2 cm. below costal border. Spleen not felt. No tenderness. Marked tâche cérébrale.

Knee jerks not obtained. Koernig on right, Babinski on both sides. Neck sign present. Extremities intermittently spastic with fingers and toes in position of tetany. Epiphyses of wrists and ankles much enlarged. Temperature 104°, pulse about 180, respirations 40.

Lumbar puncture, 40 cc. cloudy fluid under very much pressure. Clot in one-half hour. Cell count more than 1,000, all polynuclears. Smear shows occasional extra-cellular diplococcus resembling pneumococcus. Culture unfortunately thrown away. Child died five hours after lumbar puncture.

CASE 3. Richard D. Age 6½ years.

F. H. Only child. Parents well.

P. H. Full term, normal delivery, breast fed one year. Always well and strong up to six months ago when he had scarlet fever mildly, no kidney involvement. Has been well since, although "nervous" at times.

P. I. Has had pertussis for five weeks; has vomited a great deal but has felt pretty well and has been up most of the time. Paroxysms have been growing more severe for the last two weeks. Yesterday afternoon, after a severe paroxysm fell down and stayed "blue." Has been unconscious since; has been very feverish and delirious; no voluntary motions except that he swallows a great deal. Temperature was 103 by axilla this morning.

P. E. 1 P. M. 20 hours after the initial convulsion.

Well developed. Cyanotic, spastic in all extremities. Left pupil dilated, neither react. Cheyne-Stokes respirations. Lungs full of large, rattling rales.

Heart not enlarged. Sounds very rapid; no murmurs made out. Marked tâche cérébrale.

Abdominal wall rigid; no masses or apparent tenderness.

Knee jerks very much increased. Babinski present on both sides. Koernig not tried. Rectal temperature 105°, pulse 160, respirations 30.

Lumbar puncture, 45 cc. clear fluid, no clot in 12 hours. Noguchi not increased. Cell count 10, all lymphocytes. Smear, no organisms. Culture, no organisms after 48 hours.

Following lumbar puncture the child relaxed greatly; breathing became more regular and color improved. Spasticity and convulsive movements began again after about eight hours and continued until the child's death on the following day.

The other five cases of this type were from 18 months to six years old. Within the second to the fifth week of the paroxysmal stage all had a convulsion, or something like it immediately following a severe paroxysm. All had a very high temperature,—spasticity rather than paralysis. All had an increased amount of normal, sterile spinal fluid, and all died in from 10 to 48 hours of the initial convulsion.

It may be fairly assumed that all of these 8 cases were dependent, at the start, on a similar lesion, in that all presented, at the start, evidence of a diffuse process or processes in the brain and meninges. It seems to me that these symptoms are best interpreted as meaning high intra-cranial pressure, due to oedema or hemorrhage. As to oedema,—it is inconceivable to me that such a train of symptoms can come without warning, practically out of a clear sky. As to hemorrhage,—on the other hand,— the explosive character of the onset, during or immediately after a violent paroxysm, seems particularly consistent with hemorrhage,—a hemorrhage so large and producing so much pressure, that most of the focal symptoms were obscured.

In the first case it seems reasonable to assume that the case was one of hemorrhage at the start, the clot later becoming infected and producing meningitis, possibly encephalitis as well.

In the second case,—of course all that I found was a meningitis, presumably due to the pneumococcus, but the history and onset were so suggestive that I have no doubt that a cerebral hemorrhage was at the bottom of it.

It would be interesting to see what proportion of these cases become infected and have meningitis, if they live long enough.

CONCLUSION.

Here, then, are eight tragedies; seven cases dying immediately, one living but requiring unremitting care for a year and a half, and even now presenting no great promise of physical or mental development. Let us remember, however, that these are only eight—that all of the ten thousand deaths from this disease last year were just as surely tragedies; that a percentage of them was preventable by prophylaxis, and that another percentage—for surely there must have been a great many cases similar to those reported here—could have been prevented by appropriate treatment.

SUMMARY.

1. Certain cases of whooping-cough have symptoms of intra-cranial pressure, best explained on the ground of a cerebral hemorrhage.
2. The hemorrhage appears to be dependent upon the stress of a severe paroxysm.
3. The symptoms of hemorrhage in these cases pionted to lesions other than middle meningeal and were surprisingly uniform in the
(a.) Initial convulsion.
(b.) Immediate rise in temperature to a high degree.
(c.) Cyanosis.
(d.) Spasticity rather than paralysis.
4. This type of cases emphasizes the importance of prophylaxis.
5. Treatment should be directed toward at least reducing the severity of the paroxysms.

NEUROLOGICAL SOCIAL SERVICE, MASSACHUSETTS GENERAL HOSPITAL

BY MARGHERITA RYTHER, BOSTON,

Social Service Worker, Neurological Department.

INTRODUCTORY STATEMENT.

FOR seven years, under the auspices of the Social Service Department of the Massachusetts General Hospital, a worker has had charge of such cases in the Neurological Department as needed attention. The general result of this work under the immediate charge of Miss Edith Burleigh so far justified itself that it was thought desirable about a year ago (Dec., 1912) to make the relation between the Neurological Department and the Social Service Department still more intimate and presumably more efficient by having a social worker actually in the clinic, instead of at a distance, as the previous arrangement has been. Miss Margherita Ryther, Miss Burleigh's successor and former assistant, was appointed to this position and since then has had her desk in one of the rooms of the neurological out-patient department. She has thereby been brought into the closest possible relation with the actual practical work of the clinic. This has unquestionably resulted in an increase of efficiency in the treatment of patients, which it is always desirable to remember is the main object for which the clinic exists.

The significance of such an apparently trifling step as placing a social worker in immediate relation to the actual routine of a clinic is far-reaching. Wherever it has been attempted, so far as I am aware, it has met with success. It is certainly correct in principle unless the whole social service idea is wrong and that even the original doubters will not now be likely to admit. The demand for broad-minded, rational and honest treatment which Dr. R. C. Cabot has done much to foster has necessitated a broadening of the therapeutic outlook which finds expression in various ways but in none more definitely than in the closer alliance between bodily and mental conditions. A neurological clinic naturally offers peculiar opportunities for the development of such study as I believe a reading of the accompanying report will show. The growing conviction that many of the so-called functional disorders of the nervous system, at times regarded lightly by the physician, are of the utmost significance to their victims and to society at large, is being met by an adequate coöperation between medicine as represented by the doctor and external conditions as represented by the social worker. The time is rapidly approaching, if not already here, when such coöperation will be regarded as having passed the experimental stage and become established as a necessity of a well-ordered clinic. E. W. TAYLOR, M.D.

REPORT.

It is now nearing the end of the year since the Social Service Department was asked to transfer the social worker from the general department into the Nerve Clinic, and the results of the experiment are both encouraging and instructive. Through the closer relationship of doctor and social worker there is being developed a broader knowledge of their respective fields and a consciousness of the interdependence of the medical and social problems. This mutual understanding has resulted in a more vital coöperation.

There have been assisted by social service 315 patients (not counting the "clinical cases"—those not having a social record.) One hundred and twenty-seven of these are "new" and 188 are "old"; the number of new cases, being materially larger than in previous years. These totals of cases show only a part of the work done, since it has been necessary to decline several new cases after preliminary investigation and consequently these cases do not appear in either group, the patients recorded as "new" being only those of whom records were made. These new cases, of which 87 were referred by the clinic physicians and 40 by outside social agencies, were selected because of their urgency and need for investigation and "follow-up" work, and may be grouped under the following six headings:

1. Social investigation before making plans for disposition and treatment.
2. Social investigation before diagnosis is made.
3. Social study to supplement physician's treatment.
4. To get work.
5. Free treatment.
6. Miscellaneous.
7. Steering.

While the social treatment for each of these groups is dependent upon the results of the so-

cial investigation, the type and extent of the investigation must necessarily be determined by the need of the individual case. In general, however, the social investigation and treatment of these various groups may be considered in the following ways:

1. *Social investigation before making plans for disposition and treatment.*—Arrangements made for institutional, hospital, convalescent, vacation and suitable home care; work secured; free treatment.

The majority of patients coming under this group are suffering from organic nerve disease, and need social assistance in arranging for their admissions to the various state institutions, including schools for the feeble-minded, the insane hospitals, the epileptic colony, the state infirmary, the city almshouse, private homes for chronic invalids, small private hospitals, etc. A number need social supervision in their homes: *i.e.* instruction in hygiene, and "follow-up" work—oversight in seeing that they return to the clinic for treatment. Frequently the patients need financial help and the local relief agencies or relatives are called upon. There were 46 cases coming under this heading. These were divided as follows:

A. Diagnoses.		
(1) Neurosis		14
a. Epilepsy	7	
b. Chorea	4	
c. Occupational neurosis	2	
d. Gastric neurosis	1	
(2) Psychoneurosis*		4
(3) Organic cord disease		4
(4) Organic brain disease		2
(5) Psychosis and mental defect		14
a. Psychosis	6	
b. Mental defect	8	
(6) Unclassified (diseases other than nerve)		8
a. Arteriosclerosis	3	
b. Cephalalgia	1	
c. Debility	2	
d. Alcoholism	1	
e. Morphinism	1	
Total		46

B. According to Disposition.	
(1) Institutional and hospital care	22
(2) Sanatorium and convalescent	5
(3) Vacations	1
(4) Work	1
(5) Transfer to other social agencies	4
(6) Supervision in the home	12
(7) Purpose not accomplished	1
Total	46

2. *Social investigation before diagnosis is made.*—An extensive social investigation of the patient's inheritance, environmental conditions and personal history, requiring interviews with members of the family, school teachers, family physicians, employers and patient (if he is responsible enough to talk coherently).

Of this group the patients referred are usually those who show mental symptoms during the clinical examination and the physicians wish a report of facts from the family or someone who knows the patient well enough to report upon his history and behavior. The disposition in these cases is similar to that of those under No. 1, according to diagnosis made, except that in these cases the family and relatives are instructed more in detail as to the nature of the patient's illness and how they may assist in his treatment. If the patient is not proven to be suffering from insanity the socio-therapy method of treatment is frequently used (See under group 3.) There were eight cases under this heading.

A. Diagnosis.		
(1) Psychoneurosis		3
(2) Psychosis and mental defect		3
(3) Unclassified (diseases other than nerve)		2
a. Debility	1	
b. Alcoholism	1	
		8

B. Treatment	
(1) Insane hospital	1
(2) Sanatorium	1
(3) Supervision in home	1
(4) Transfer to care of other social agencies	3
(5) Transfer to care of family	2
	8

3. *Social study to supplement physicians' treatment.*—Socio-therapy—an analysis of the patient's environmental conditions, hereditary influences and temperamental tendencies as; (1) a basis for treatment; (2) as a curative influence. In the study and treatment of the psychoneuroses the social histories and conditions play an important part.

(1) The physicians in the clinic have not the time to study the causal social conditions contributing to the nervous invalidism of these patients, and the information secured is of value to them in rounding out their clinical examinations and making it possible to advise the best treatment. The many cases demanding their attention makes it necessary, in general, for them to confine their efforts to the physiological disturbances of the nervous system. The doctor in his private practice in treating one of these cases knows that frequently the nervous disorders may be traced to emotional conflicts which are often the outcome of faulty environmental conditions. He would not advise treatment without a knowledge of the patient's resources, social, financial or otherwise, but it takes time to secure these facts, and it is just here that the social worker in the clinic is useful, since by getting from the patient the needed data she saves the physician

* The term "psychoneurosis" is used in this report as a general term, to indicate neurotic states, predominantly mental in character, but not reaching the point of irresponsibility.

much time and the foundation is laid for good medical and social team-work, which is of decidedly greater value to the patient than either alone.

(2) The analysis is used secondarily as a medium for social and psychological treatment, the benefit to the patient being a clearer understanding of what nervousness means, the many causes contributing to nervous breakdown, and the means available for readjustment. He is made to see himself and his environmental conditions from an objective point of view. He learns to understand himself and his relation to others; he is enabled to review his life's development; he is made to face his faulty traits of character and unfortunate inherited tendencies. He sees not only his weak but also his good qualities and through this increasing knowledge and release from former self-ignorance the means and opportunity to reëstablish himself is provided. This breaking down of old habits, false beliefs, etc., cannot be accomplished at once. Self-knowledge is only the first step towards gaining emotional poise, but the light thrown upon the patient's life through the unravelling of his social background is the foundation of ultimate recovery. Through the social study the patient is awakened to his responsibilities to himself and others. His confidence in the worker and doctor being established he is started upon a course of mental hygiene consisting sometimes of months of patient reiteration of the need for daily practice of healthful habits. The social worker continues to assist with the patient's treatment through interviews and home visits and gradually becomes the bond between the patient and the doctor. Furthermore she follows the case between visits to the hospital and is thus able to have ready for the physician at each visit of the patient much information of value to him in his conduct of the case.

Convalescent and sanatorium treatment is arranged for in some cases and work secured in others. Not infrequently the treatment of these patients includes all the above care. There were 19 patients referred under this category.

A. Diagnoses.

(1) Neurosis	5
a. ? Epilepsy	3
b. Occupational neurosis	2
(2) Psychoneurosis	13
(3) Debility	1

B. Treatment.

(1) Sociotherapy	19
(2) Sanatorium	3
(3) Convalescent	2
(4) Change of environment, care away from home	1
(5) Change of work	2
(6) Social oversight	10
(7) Assistance refused	1
	19

C. Results.

(1) Improved	15
(2) Poor results	3
(3) Unknown	1
	19

4. *To get work.*—Three patients were referred for work because of its therapeutic value. The nature of their illnesses and condition made it difficult for them to secure employment from an agency.

Diagnoses.

(1) Organic peripheral disease	1
(2) Organic brain disease	1
(3) Psychoneurosis	1
	3

5. *Free treatment.*—Free treatment may range from securing admission to the clinic to raising money for an expensive apparatus. Nine patients were referred in this group.

A. Diagnoses.

(1) Organic cord disease	3
(2) Organic brain disease	5
(3) Unclassified	1
	9

B. Treatment.

(1) Salvarsanized serum	4
This requires raising sometimes $10-$20 for course of treatment.	
(2) Salvarsan	1
(3) Medicine and admission	2
(4) Apparatus, costing $20	1
(5) Hydrotherapy	1
	9

6. *Miscellaneous.*—A patient, suffering from tabes, was referred because the physician felt the man had been unfairly deprived of his insurance policy. The investigation proved otherwise and the patient was finally convinced that he had been treated leniently under the circumstances.

Another patient, a young married woman, having epilepsy, was referred because she was greatly disturbed over her mother whom she felt was being neglected in a home for aged where her family had paid $500 for her maintenance for life. The conditions were investigated and the home found to be one of questionable reputation. As the patient's brother was satisfied with the care his mother was having and refused to take legal steps the matter was dropped. This case has required much social attention as the patient's environmental conditions were poor and in need of adjustment.

7. *Steering.*—Any outside social agency may send a patient to the Social Service Department and be assured that the patient will be properly

admitted to the hospital, steered to the right physician, examined, and that the agent will receive the doctor's report as to the diagnosis made and his advice as to treatment. This coöperation between the medical social worker and the outside agency is of mutual benefit. Before the patient is referred the outside agency forwards a brief social history of the patient, and this is given to the physician before the patient is examined, and while the outside agency carries the entire social responsibility of the case. The social service worker reports upon the condition of the patient from time to time—whether he is reporting to the clinic as advised, etc.; and secures free admission and medicines if required. In the cases passing through the Neurological Department there are many instances where the outside agency must be instructed as to the specific social information needed, particularly in cases where there is a question of the patient's mental condition. There were 40 cases coming under group 7.

A. Diagnoses.		
(1) Organic peripheral disease		2
(2) Organic cord disease		10
a. Tabes	7	
b. Ataxia paraplegia	2	
c. Old poliomyelitis	1	
	8	
(4) Psychoses and mental defect		8
a. Psychoses	4	
b. Mental defects	4	
	8	
(5) Unclassified (other than nerve)		12
a. Alcoholism	6	
b. Debility	2	
c. Syphilis	1	
d. Arteriosclerosis	1	
e. Reserved	2	
	12	
(6) Psychoneuroses		2
(7) Neuroses		7
a. Epilepsy	3	
b. Chorea	2	
		40
B. Treatment.		
(1) Free treatment		40
a. Admission	40	
b. Medicine	40	
c. Hydrotherapy	1	
(2) Arrangements for admissions to institutions		2
(3) Steering		40

The group designated as "old" embraces the patients who had been referred to us during previous years and with whom we are still in touch in consequence of their need of advice and help. These cases have required much attention, as their problems have frequently needed close observation and social supervision through periods extending into months. The social worker, once a friend, is called upon over and over again, for the intimate relation formed at the time of the patient's first urgent need is a tie not easily severed. The patients' knowledge of life and affairs is meagre and often confusing and their outlook is so narrow that not infrequently their future well-being depends upon their having intelligent advice on the many difficulties surrounding them, domestic and otherwise. Sometimes the solution is simple, as for instance: what may seem to them a complex family situation is in reality only the outcome of petty misunderstandings and can easily be solved by tactful measures. To expand the vision of these patients is the social worker's duty, and in her unique position and relation to them she has an unusual opportunity to teach the principles of a useful and simple philosophy of life. Her range of helpfulness extends from a smile of friendly good cheer to hours or days of extensive labor, often required before any adequate solution of the specific problem can be evolved.

IS SANATORIUM TREATMENT WORTH WHILE?

BY GERTRUDE L. FARMER, BOSTON.

Social Service Department, Out-Patient Department, Massachusetts General Hospital, Boston.

[A study of 419 phthisical patients referred during a period of six years, from January 1, 1906, to January 1, 1912, to the Social Service Department of the Massachusetts General Hospital, and sent to the State Sanatoria.]

PURPOSE.

PULMONARY tuberculosis has been the medical diagnosis of the largest group of patients referred to this department. In the first annual report of our work, 1905-1906, I wrote: "There is no other place (than Rutland) in Massachusetts where a patient can get, for four dollars a week, a dry, clear climate, free from the damp and dust of the town, expert medical supervision, plenty of good food, the discipline and psychic contagion of a large institution where everyone in sight is following the treatment. . . so hard to carry out alone at home." This seems to me to be equally true today, and we continue to try and secure this treatment for our patients. We thought it was time to make some general test of its efficacy.

At a time when the effectiveness and economy of state sanatorium care is much under discussion, we have hoped to throw a little light on the subject. Massachusetts has committed her-

self to this policy by building three other institutions in addition to the one already in existence.

We make no claim to the possibility of drawing any general conclusions from our data. The numbers found to be available are too small. This is simply a limited study of 419 individuals. The principal end we have had in view is an answer to the questions: How many of these patients are now living normal lives? How many are dragging out an existence with one foot in the grave?

METHODS.

Tracing Patients. In beginning our study we sent a letter to each patient. When no reply was received we tried to trace through relatives, private agencies, and anti-tuberculosis societies, official agencies, chiefly boards of health and town clerks. The boards of health were valuable when they employed a visiting nurse. In the case of Boston patients the out-patient department of the Municipal Hospital for Consumption and the Bureau for the Confidential Exchange of Information were of great assistance.

Difficulties in Tracing. Where other resources failed, we visited the last address, and followed up clues, until some information was obtained, or the quest proved hopeless.

The attempt to get in touch with these patients involved a great deal of work. Many of them had been seen only once. Many of them, the majority, had not been heard of since they left the sanatorium. Almost all were poor working people, who change their residence frequently, and leave few clues behind. Some have married, and in the case of women this tends to cover their tracks. Some have left the country. Many have foreign names, the spelling of which in English is problematical. Our early records contain less information than the later ones. We have no regular system of follow-up work and no facilities for it, but since 1910 we have kept a card catalogue of sanatorium cases with this study in view.

That out of a total of 419, only 20 patients remain quite untraced is owing to the untiring efforts of the workers, both paid and unpaid, assisting in this study.

GENERAL PLAN OF STUDY.

Period Chosen.—The Social Service Department started in October, 1905. When we began this study we decided to consider those patients who were admitted to and discharged from one of the state sanatoria, during the years from Jan. 1, 1906, to Jan. 1, 1912, and only those to whose going our efforts had contributed.

Why the Number Available is Small. During the six years out of a total of 8224 patients referred to us, 2564, or 31.1+%, had a diagnosis of pulmonary tuberculosis. That of these we only succeeded in obtaining state sanatorium care for 419, or 16.3+%, is due to a variety of reasons. Up to September, 1909, Massachusetts had only one state sanatorium, that at Rutland. In attempting to get a patient admitted, more difficulty was experienced than is found today. Rutland has tried to give the preference to the incipient, favorable case. Citizenship was required, and the question of finances had to be gone into. Our older records show how often a patient was held up "for lack of funds." When a patient is now unable to pay, the matter may be left to the State Board of Charity. Since 1910 we have had four state sanatoria, all under a special board of trustees, and three of them admitting all types of cases. Questions of citizenship and settlement have been much modified, and are no longer bars against admission, except occasionally in the case of an unsettled alien with an obviously poor prognosis. In cases where admission was possible, we often failed to persuade patients to go. Lack of vacancies made the interval between application and admission long, patients became discouraged, lost ground, and so were unsuitable for admission, or made other plans. These last two reasons hold good today.

The 2145, or 83.7+%, who did not go to the sanatoria were referred to tuberculosis classes, chronic hospitals, homes for incurables, anti-tuberculosis societies, etc.

We have excluded from our regular tabulation 96 patients, grouped as follows: Not considered,* 50; died at sanatorium, 21; no phthisis, 5; untraced, 20. Separate tabulation has been made of the first three groups.

Plan of Tabulation. Taking the remaining 323 patients we have grouped them according to stage on admission, noting age, length of stay, condition on discharge, and present condition. A special effort has been made to get the stage on admission and condition on discharge from the sanatorium, as it differs somewhat from that found in the hospital records.

As this is an economic study we have not entered into any discussion as to medical terms and classifications. The sanatoria have made use of the classification of "incipient," "moderately advanced," and "advanced," as given by the National Association for the Study and Prevention of Tuberculosis. They classify the discharged patients more or less according to the same authorities, as "apparently cured," "arrested," "improved," "unimproved," "dead," with the occasional use of subheadings, such as "progressive." Within a few months they have discontinued the use of the term "apparently cured" and use the much broader one of "arrested." We have used the latter term to cover all cases discharged as "apparently cured" and "arrested."

Present Condition. We have directed our attention chiefly to finding out: (*a*) the number of years that these patients have lived since

* *i.e.* remained too short a time at the Sanatorium to be instructive from the point of view of results.

discharge, and (*b*) their present condition. In the majority of cases the period noted is the winter of 1912-1913. We have classified them as "well," "alive," "dead," making use of only three terms in order to simplify the tabulation, and making these cover the following points:—

"*Well.*" Means also working or able to work, that is, the ability to lead a normal life. In the case of women we consider the occupation of housewife as a normal work condition.

"*Alive.*" Includes those too ill to work; those working but ill; those readmitted to the sanatorium and there at the time of report; those in other institutions for the tubercular; those about whom we have been unable to get any other information except that they are alive. Some of the last may be "well," which would alter our percentages.

"*Dead.*" In the case of those who have died, "present condition" means the date of death in whatever year since discharge it falls.

Medical Condition. We have not attempted to note the medical condition of these patients except as it is indicated by ability to work, and in the majority of cases this "ability" was their own opinion. To obtain an expert examination of the chest and a report on sputum would have involved great difficulties, and in many cases would have been impossible. Unless reliable it would not have been of any value. We got a few patients into the hospital for examination, but not in sufficient numbers to be of statistical benefit.

THE "NOT CONSIDERED" PATIENTS.

The state sanatoria classify as "not considered" those patients who stay a month or less. Occasionally the period has been six weeks or less. We have included under this heading those who stayed a month or less, and also some who stayed a somewhat longer period, but were discharged without a definite report on their condition.

Of the 419 patients there were 50 "not considered," or 11.9+%. The stages on admission were: incipient, 23; moderately advanced, 13; advanced, 14.

AGES ON ADMISSION (all stages).

5-10 years	0 patients
11-20 years	8 patients
21-30 years	21 patients
31-40 years	16 patients
41-50 years	5 patients
51+ years	0 patients

LENGTH OF STAY.

12 stayed 1 week or less.
19 stayed 2-3 weeks.
19 stayed 4-7 weeks.

Of the 50 patients in this group, 9, or 18%, had some complication.

STAGE I.

1 Alcoholic.	Well after 3 years.
1 Pregnancy.	Well after 6 years.
2 Neurasthenic.	1 well after 6 years. 1 alive after 5 years.
1 Old tuberculosis of knee.	Well after 6 years.

STAGE II.

1 Syphilis, morphine habitué.	Well after 2 yrs.
1 Neurasthenic.	Well after 1 year.
1 Tubercular laryngitis.	Died after 1 year.

STAGE III.

1 Tuberculosis of knee.	Died after 2 years.

Of the 23 in Stage I, 17 patients are well, 4 alive, 2 dead.

Of the 13 in Stage II, 7 patients are well, 3 alive, 3 dead.

Of the 14 in Stage III, 2 patients are well, 2 alive, 10 dead.

Totals (all stages) well, 26 patients, or 52%; alive, 9, or 18%; dead, 15, or 30%.

It will be seen that the "not considered" patients make a very good showing. Of the 23 patients admitted in the incipient stage 17 are well: 2 after 2 years, 3 after 3 years, 1 after 4 years, 1 after 5 years, 9 after 6 years, 1 after 7 years.

PRESENT CONDITION AND TIME SINCE DISCHARGE OF THE 50 "NOT CONSIDERED" PATIENTS.

	Stage I.			Stage II.			Stage III.		
	Well.	Alive.	Dead.	Well.	Alive.	Dead.	Well.	Alive.	Dead.
6 mos. or less			1						3
1 year				2		2	1		1
2 years	2		1		3		1	1	4
3 years	3			3		1		1	2
4 years	1								
5 years	1	2		2					
6 years	9	2							
7 years	1								
	17	4	2	7	3	3	2	2	10

Of the 13 admitted in the moderately advanced stage, 7 are well: 2 after 1 year, 3 after 3 years, 2 after 5 years.

These results will appeal to those who believe that the most desirable function for a state sanatorium is that of an educative establishment. If this opinion is well founded, it is fair to assume that some of these short-stay patients carried away an object lesson of great value to them in after life.

Reasons for Discharge. We made a special effort to discover the reasons for the premature discharge of these patients as we felt it would be interesting to know what induced 50 people, out of a small group, to give up what might have been their one chance of recovery from a disabling sickness. In most cases we obtained the information from the sanatorium records. We have classified these reasons as the following:

1. Insufficient evidence of tuberculosis 3
2. Too far advanced 1
3. Pregnant 1
4. Misconduct 2
5. Lack of funds 1
6. Neurasthenic 3
7. Came for education 2
8. To follow treatment at home 3
9. Dissatisfied with sanatorium 8
10. Objected to treatment 4
11. Homesick 5
12. Home or business conditions 6
13. Discouraged 1
14. Left of own accord, no reason given 3

Out of the 50, therefore, we obtained some definite information in 43 cases.

In 7 cases we could obtain no information at all. The 2 patients under 2 and 5 would not be discharged today. The 5 under 7 and 8 might be classified together as "educative cases." Nos. 11 and 12 suggest that social work in connection with the patient's home environment might have induced these 11 patients to continue their treatment.

"NO PHTHISIS" PATIENTS.

Of the 419 patients who were admitted to the sanatorium, 5, or 1.4%, were discharged as having no phthisis. These patients were all admitted as in the incipient stage. Three had other complications as follows: Exophthalmic goitre, 1; sarcoma of lung, 1; iritis (tubercular), 1. In 2 no other diagnosis was noted.

Present Condition of the 5 "No Phthisis" Patients. One died at the sanatorium, 3 are well after 2-6 years, 1 is alive after 6 years (in an institution, with advanced phthisis).

"DIED AT THE SANATORIUM."

Out of the total of 419 patients admitted to the sanatoria 21, or 5%, died before discharge. Of these 5 went to Rutland, 11 to North Reading, 3 to Lakeville, 2 to Westfield.

Stage on Admission. Moderately advanced, 7; advanced, 14.

Length of Stay. Eleven stayed 3 months or less; 4, 3-6 months; 6, 6 months or 1 year.

Complications. Of the 21 patients in this group, 8, or 38+%, had some complication other than phthisis. These were as follows: Tuberculosis of larynx, 3; of tibia, 1; of wrist and epididymis, 1; of spine, 1; of genito-urinary tract, 1; heart disease, 1.

It is to be noted that 14 of the 21 patients were admitted in Stage III. All but one had tuberculosis in another part of the body. About one-half died three months or less after admission.

AN ANALYSIS OF 323 PATIENTS DISCHARGED ALIVE FROM THE STATE SANATORIA DURING THE YEARS 1906, 1907, 1908, 1909, 1910, 1911.

The 323 patients were divided as follows on admission: Incipient, 117, or 36.2+%; moderately advanced, 147, or 45.5+%; advanced, 59, or 18.2+%. As out of a total of 323, 308 went to Rutland, while North Reading had only 60, Lakeville 39 and Westfield 12, it might have been expected that this would prove to be a study of incipient cases. The fact, however, that there were nearly 10% more of the moderately advanced helps to bear out the claim, that of all those who apply for admission to Rutland, only 33% have been in the early stages of the disease.

Living and Dead. (Total of all stages, 1912-1913.) Living, 220, or 68.1+% (106, or 90%, incipient; 98, or 66.5+%, moderately advanced; 16, or 26.9+%, advanced.) Dead, 103, or 31.8+% (11, or 9.4+%, incipient; 49 or 33.3+%, moderately advanced; 43, or 72.8+%, advanced).

An analysis of the above is given in Charts I, II and III and in the text.

AGE ON ADMISSION OF THE 323 PATIENTS.

Incipient. Total, 117 patients. 5-10 years, 0 patients; 11-20 years, 39 patients, or 33.3%; 21-30 years, 46 patients, or 39.3%; 31-40 years, 23 patients, or 19.6% (11-40 years equals 92.2%); 41-50 years, 8 patients, or 6.8%; 50 and over, 1 patient, or .85%.

Moderately Advanced. Total, 147 patients. 5-10 years, 1 patient, or .68%; 11-20 years, 28 patients, or 19.0%; 21-30 years, 61 patients, or 41.4%; 31-40 years, 38 patients, or 25.8% (11-40

years equals 86.2%); 41-50 years, 17 patients, or 11.5%; 51 and over, 2 patients, or 1.3%.

Advanced. Total, 59 patients. 5-10 years, 0 patients; 11-20 years, 1 patient, or 1.6%; 21-30 years, 28 patients, or 47.4%; 31-40 years, 19 patients, or 32.2%; 41-50 years, 6 patients, or 10.1% (21-50 years equals 89.7%); 50 and over, 5 patients, or 8.4%.

The numbers studied are too small to render any general conclusions valuable. Certain points may be noted.

Of all stages we have had only one patient in the first decade. Up to a year or so ago there was no sanatorium in Massachusetts to which children could be sent, and care for these has always constituted one of our most difficult problems. Rutland has not admitted patients under fifteen years of age. At present such children can be sent to Westfield.

Taking the sixth decade we have in all stages only eight patients. Rutland did not encourage admission over forty-five years of age.

The greatest number in the incipient and moderately advanced falls within the second, third and fourth decades. In the incipient it is 92.2+%. In the moderately advanced, 86.2+%. The maximum in both stages is in the third decade. In the incipient this is 46 cases, or 39.3+%. In the moderately advanced, 61 cases, or 41.4+%. In the advanced 89.7+% falls within the third, fourth and fifth decades, while, as in the other stages, the maximum, 28 cases, or 47.4+% is in the third decade. But the whole number of the advanced is only 59.

It will be seen that the age incidence in the incipient and moderately advanced stages agrees with the accepted theory that active phthisis is most common in the young adult, but that mechanical reasons influenced the numbers in the first, fifth and sixth decades.

LENGTH OF STAY.

The 323 patients stayed at the sanatorium as follows:—

The Incipient; 117 patients stayed a total of 2477 weeks. Average stay for each patient, 5¼ months; 35 patients stayed 3 months or less; 54, 3-6 months; 22, 6 months to 1 year; 6, 1 year or more.

Moderately Advanced; 147 patients stayed a total of 4081 weeks. Average stay for each patient, 6¾ months; 28 patients stayed 3 months or less; 47, 3-6 months; 64, 6 months to 1 year; 8, 1 year or more.

Advanced; 59 patients stayed a total of 1552 weeks. Average stay for each patient, 6½ months; 16 patients stayed 3 months or less; 22, 3-6 months; 16, 6 months to 1 year; 5, 1 year or more.

The average length of stay for all patients was about 6 months; 35, or 29.9+%, of the incipient patients stayed 3 months or less; 54, or 46.1+%, stayed from 3 to 6 months; 28, or 19.+%, of the moderately advanced stayed 3 months or less; 47, or 31.9%, stayed 3 to 6 months.

It is evident that, according to the generally accepted theory as to the length of time necessary to arrest the disease, the length of stay of these patients was too short. The fact that, notwithstanding this brief period of treatment our ultimate results are so good may be due partly to the fact that in the majority of cases, and for reasons given above, we were dealing with fairly favorable cases. Our numbers also were small. Any other conclusion would be dangerous.

So far as I know, there is no fixed period of stay required at the Massachusetts state sanatoria. I have known a patient discharged "arrested," and "with advice," after two months; another discharged "improved," and "against advice," after a year.

EXPLANATION OF CHARTS.

To show the ultimate result of our study, we have grouped the 323 patients in charts.

Chart I gives the number discharged as "arrested," "improved," "not improved," arranged according to the three stages on admission.

Chart II gives the present condition under our classification of "well," "alive," "dead." It is arranged according to the three stages on admission, and showing the numbers under each classification at different periods since discharge varying from six months to seven years.

Chart III includes Charts I and II, giving present condition under "well," "alive," "dead," in relation to the condition of discharge, and showing the numbers in certain periods of time since discharge.

DETAILS OF CHART I.

In the incipient group the largest number, 84, or 71.7%, were discharged arrested. This is 57.5% of the entire number discharged arrested, which agrees with the accepted belief as to the desirability of admission in the incipient stage. It is all the more striking when we consider that the majority of these stayed an average of six months.

In the moderately advanced group the largest number, 75, or 51.+%, were discharged improved. This is also 51.+% of the entire number discharged improved. It would seem that a longer residence than the given average of six and three-fourths months might have put many of these under "arrested."

In the advanced group the largest number, 39, or 66.1%, is also discharged improved. The largest number of the entire number discharged not improved comes in this group, 17, or 53.1%.

DETAILS OF CHART II.

"Present Condition" is the time when the report of the patient was received. In most cases it was February, 1913, but reports were received from December, 1912, up to April, 1913, and in a few cases, difficult to trace, up to November, 1913. In case of death, "present condition" is the date of death.

Time Since Discharge. In reckoning the time since discharge any part of a year under six months was not counted. Over six months was counted as one year.

Re-admissions. In case patients were admitted more than once the stage of the first admission was taken and the condition on the last discharge, excluding any admissions or discharges which came outside of the given six-year period which the study covered.

Present Condition for total of all stages: Well, 150 patients, or 46.4%; alive, 70, or 21.6%; dead, 103, or 32.1%.

Incipient Group. Of the 117 patients, 82, or 70.%, are "well"; 24, or 20.5%, are "alive"; 11, or 9.4%, are "dead."

Of the 82 patients who are "well," 3 have been discharged 1 year; 21, 2 years; 10, 3 years; 10, 4 years; 19, 5 years; 18, 6 years; 1, 7 years.

The largest numbers have been discharged 2 years (21 patients) and 5 years (19 patients).

Of the 24 patients who are "alive," 3 have been discharged 1 year; 8, 2 years; 2, 3 years; 2, 4 years, 7, 5 years; 2, 6 years.

The largest numbers have been discharged 2 years (8 patients), and 5 years (7 patients), as in group "well." Of the "alive," 10 patients are working, 2 are in hospitals, 6 are known to be "alive" but no further information obtained.

Of the 11 patients who have died, 2 lived 6 months or less after discharge; 4, 1 year; 1, 2 years; 1, 3 years; 2, 4 years; 1, 5 years.

Moderately Advanced Group. Of the 147 patients, 61, or 41.4%, are "well"; 37, or 25.1%, are "alive"; 49, or 33.3%, are "dead."

Of the 61 patients who are "well," 7 have been discharged 1 year; 15, 2 years; 13, 3 years; 7, 4 years; 10, 5 years; 8, 6 years; 1, 7 years.

The largest numbers have been discharged 2 years (15 patients) and 3 years (13 patients), but almost as many (10 patients) have been discharged 5 years.

Of the 37 patients who are "alive," 8 have been discharged 1 year; 13, 2 years; 6, 3 years; 1, 4 years; 4, 5 years; 4, 6 years; 1, 7 years.

The largest number have been discharged 1 year (8 patients), and 2 years (13 patients). Of the "alive," 17 patients are working, 14 are in hospitals.

Of the 49 patients who are dead, 10 lived 6 months or less after discharge; 13, 1 year; 8, 2 years; 12, 3 years; 3, 4 years; 2, 5 years; 1, 6 years.

Advanced Group. Of the 59 patients, 7, or 11.8%, are "well"; 9, or 15.1%, are "alive"; 43, or 72.8%, are dead.

Of the 7 patients who are "well," 2 have been discharged 1 year; 2, 2 years; 1, 3 years; 2, 5 years.

Of the 9 patients who are "alive," 3 have been discharged 1 year; 4, 2 years; 1, 3 years; 1, 5 years. Of the "alive," 3 patients are working, 2 are in hospitals.

Of the 43 patients who have died, 17 lived 6 months or less after discharge; 15, 1 year; 6, 2 years; 2, 3 years; 1, 4 years; 2, 5 years.

DETAILS OF CHART III.

Incipient Group. Of the 117 patients, 84, or 71.7+%, were discharged arrested. Of these, 66, or 78.5+% are well; 17 have been discharged 2 years (or less); 17, 3-4 years; 32, 5-7 years.

Fifteen, or 17.8+%, are alive; 6 have been discharged 2 years (or less); 2, 3-4 years; 7, 5-7 years.

Three, or 2.5+%, are dead; 2 lived 2 years (or less) after discharge; 1, 3-4 years after discharge.

Thirty-one, or 26.4+%, were discharged improved. Of these, 16, or 51.6+%, are well; 8 have been discharged 2 years (or less); 1, 3-4 years; 7, 5-7 years.

Nine, or 29.0+%, are alive; 5 have been discharged 2 years (or less); 1, 3-4 years; 3, 5-7 years.

Six, or 19.3+%, are dead; 3 lived 2 years (or less) after discharge; 2, 3-4 years; 1, 5-7 years. Two, or 1.7+%, were discharged not improved. These both died 2 years or less after discharge.

Moderately Advanced Group. Of the 147 patients, 59, or 40.1+%, were discharged arrested. Of these, 33, or 55.9+%, are well; 13 have been discharged 2 years (or less); 12, 3-4 years; 8, 5-7 years.

Eighteen, or 30.5+%, are alive; 10 have been discharged 2 years (or less); 5, 3-4 years; 3, 5-7 years.

Eight, or 13.5+%, are dead; 2 lived 2 years (or less) after discharge; 5, 3-4 years; 1, 5-7 years.

Seventy-five, or 51.0+%, were discharged improved. Of these 29, or 38.6+%, are well; 9 have been discharged 2 years (or less); 8, 3-4 years; 12, 5-7 years.

Fifteen, or 20.%, are alive; 10 have been discharged 2 years (or less); 4, 3-4 years; 4, 5-7 years.

Thirty-one, or 41.3+%, are dead; 20 lived 2 years (or less) after discharge; 9, 3-4 years; 2, 5-7 years.

Thirteen, or 8.8+%, were discharged not improved. Of these 1, or 7.6+%, is well 5-7 years

after discharge. Two, or 15.3+%, are alive; 1 has been discharged 2 years (or less); 1, 3-4 years.

Ten, or 76.9+%, are dead; 9 lived 2 years (or less) after discharge; 1, 3-4 years.

Advanced Group. Of the 59 patients, 3, or 5%, were discharged arrested. Of these, 2, or 66.6+%, are well; 1 has been discharged 2 years (or less); 1, 5-7 years.

One, or 33.3+%, is alive 2 years (or less) after discharge.

Thirty-nine, or 66.1+%, were discharged improved. Of these, 5, or 12.8+%, are well; 3 have been discharged 2 years (or less); 1, 3-4 years; 1, 5-7 years.

Seven, or 18.3+%, are alive; 5 have been discharged 2 years (or less); 1, 3-4 years; 1, 5-7 years.

Twenty-seven, or 69.2+%, are dead; 22 lived 2 years (or less) after discharge; 4, 3-4 years; 1, 5-7 years.

Seventeen, or 28.8+%, were discharged not improved. Of these, 1 or 5.8+%, is alive 2 years (or less) after discharge. Sixteen, or 94.1+%, are dead, all 2 years (or less) after discharge.

It is of interest to note that in Chart I the per cent. of patients discharged "arrested" in the incipient group, 71.7+%, nearly agrees with the per cent. found to be "well" in Chart II, 70.0%. Whether or not these "arrested" patients are the same who are now "well" is shown in Chart III, where it is found that of the total discharged "arrested," 78.5+% are now "well." An "arrested" condition on discharge carries with it a good prognosis, and in our 323 patients this prognosis was realized. The per cent. of those discharged "improved," 26.4+%, coincides with those now "alive," 20.5+%. In Chart III it is found that of those discharged "improved" only 29.0+% are "alive." This indicates that of those discharged "improved," the larger number are in other groups; 51.6+% are found in "well," and 19.3+% are dead,—a very favorable result in "improved" cases. The per cent. of those discharged "not improved," 1.7%, and of those now "dead," 9.4%, is not similar, which is as we might expect, as a certain number of those discharged "arrested" or "improved" would be found to be "dead" either because they were not as well as was thought, or because they had not been able to have the care they still needed.

In the moderately advanced group there are 40.1+% discharged "arrested" and 41.4% now "well." Chart III shows that of the "arrested" 55.9+% are now "well"; a smaller per cent. than in the incipient group, as one might expect, since it is harder as the disease advances to predict the outcome. For the same reason the per cents. of those "improved" and "not improved" do not agree with the per cent. "alive" and "dead." An increased variance is found in the advanced patients.

CHART I.

CONDITION ON DISCHARGE OF THE 323 PATIENTS.

Stage on Admission.	Arrested	Improved.	Not Improved.
I	84 or 71.7+%	31 or 26.4+%	2 or 1.7+%
II	59 or 40.1+%	75 or 51.0+%	13 or 8.8+%
III	3 or 5.0+%	39 or 66.1+%	17 or 28.8+%
Total	146 or 45.2+%	145 or 44.8+%	32 or 9.9+%

CHART II.

PRESENT CONDITION OF THE 323 PATIENTS CLASSIFIED AS: WELL, ALIVE, DEAD, AND SHOWING THE TIME SINCE DISCHARGE.

Stage.		6 Mos. or Less.	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.	6 Yrs.	7 Yrs.	Total.
I	Well		3	21	10	10	19	18	1	82 or 70.0+%
	Alive		3	8	2	2	7	2		24 or 20.5+%
	Dead	2	4	1	1	2	1			11 or 9.4+%
II	Well		7	15	13	7	10	8	1	61 or 41.4+%
	Alive		8	13	6	1	4	4	1	37 or 25.1+%
	Dead	10	13	8	12	3	2	1		49 or 33.3+%
III	Well		2	2	1		2			7 or 11.8+%
	Alive		3	4	1		1			9 or 15.1+%
	Dead	17	15	6	2	1	2			43 or 72.8+%

CHART III.

PRESENT CONDITION OF 323 PATIENTS IN RELATION TO CONDITION ON DISCHARGE, AND THE PERIODS OF TIME WHICH HAVE ELAPSED SINCE DISCHARGED.

Incipient 117.

Present condition	Well									Alive									Dead								
Time since discharge	2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.		
Condition on discharge	A[1]	I[2]	NI[3]	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI
Number of patients	17	8		17	1		32	7		6	5		2	1		7	3		2	3	2	1	2			1	

Moderately Advanced 147.

Present condition	Well									Alive									Dead								
Time since discharge	2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.		
Condition on discharge	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI
Number of patients	13	9		12	8		8	12	1	10	10	1	5	1	1	3	4		2	20	9	5	9	1	1	2	

Far Advanced 59.

Present condition	Well									Alive									Dead								
Time since discharge	2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.		
Condition on discharge	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI
Number of patients	1	3			1		1	1		1	5	1		1			1			22	16		4			1	

[1] A—Arrested.
[2] I—Improved.
[3] NI—Not Improved.

SOME HUMAN DOCUMENTS.

Tabulations and percentages have some statistical value and furnish quotable material. They are rather dry reading. When obviously unstudied, and intelligent, letters from patients give the most valuable as well as the most interesting information. Here are some extracts from those received by us in answer to our enquiries. I give a few data on each case as they were when first seen by us and then the extracts in the writer's own words, changing names and places.

N. K., a married women, 39 years of age, six children. A moderately advanced case, at Rutland three months. Discharged, arrested 1907. Under observation in our tuberculosis class before and after going to the sanatorium. Lost sight of for three years. December, 1912, she writes, "I am in the best of health at present, I think I could not feel any better, my weight is 210 pounds at present." This patient was always heavy, 180 pounds when first seen.

A GOOD STUDENT.—T. T., single, 18 years of age. An incipient case, at Rutland, 1907, four months. Discharged arrested. Lost trace of for nearly five years. December, 1912, he writes, " . . . from a slim, haggard-looking human skeleton I have been transformed at the Sanatorium to a ruddy, active citizen. Since leaving the sanatorium I have entered . . . University and graduated with the degree of LL.B. I did not think it expedient to let my high school education go to naught. I paid my tuition by giving private lessons in English, to men of foreign birth. . . . I have never been confined to bed on account of my physical condition. Have retained every ounce of the 20 pounds gained at Rutland. This is perhaps due to the fact that sleep 365 days a year in the open, do not smoke nor drink and lead a regular life. I do not cough, except a little when I rise. I sleep soundly, eat well. Of course I am not a strong man. I am rather short-winded. To remedy this I walk slow and do not over-exercise."

THE BEFORE AND AFTER MAN.—N. E., single, 23 years of age. An incipient case, at Rutland about six and one-half months. Discharged arrested 1907. Not seen by us after admission. Six years after discharge he writes, " . . . was glad to know you people are interested in my health . . . am in the best of health at present, ... thanks to my dear wife I have been able to follow the rules of the Sanatorium, chest baths, etc. Four years after leaving the Sanatorium we came to Colorado. I work at my old trade of tailoring, have managed to keep up my weight . . . don't cough but do raise in the A.M. I send you a photo which I had taken in Rutland and one I had taken here in front of my house." The photographs show in the first a cadaverous, big eyed young man, the second a smiling, self confident fat man standing in front of a frame cottage.

A PERSEVERING WORKER.—T. D., single, 27 years old. An incipient case, at the Sanatorium about eight months. Discharged arrested. March, 1912, writes " . . . after leaving the Sanatorium in February I go back to my old work (in a factory) and I commence to lose weight again. So I go to Canada. I do not do much work that summer but I kept on with the treatment, sleeping out of doors and taking exercise. (sic) That winter I work in the woods, but don't forget the Sanatorium rules. Last spring (1912) I come to New Hampshire I get employment on large farm. I didn't have any idea I could hold my position. I stated my case to my employer, and he bought a tent for me. I work hard all summer and did not lose weight. I gain about 30 pounds when at the Sanatorium and I have 25 of that now. I must tell you I never work on a farm before. I had to learn to handle horses and operate the up-to-date machinery. I heard from one of my neighbors that my boss says I do as good work as any man he has. I tell you this to show you what the Sanatorium did for me. This is a fine country for T. B. We have three foot of snow at present and this morning at 6 A.M. it was 24 below zero. If more of the rested T. B. cases would come here instead of staying round the city it would do them more good."

F. P., single, 29 years old. A moderately advanced case. A student at college when first seen. Nine and one-half months at the Sanatorium, discharged arrested. Not seen again by us. January, 1913, writes " . . . After leaving the Sanatorium I went to Colorado for a year to find profitable employment, to get the benefit of the climate, and to make a home. But one had better be sure of some employment and not trust wholly to good fortune to land him in a job when he arrives there, for there are few industries . . . and more half-well people willing to work for next to nothing, than you can imagine . . . I found it difficult, impossible, to get employment of any kind immediately and I had no course open except to return East . . . I am living in . . . with my wife and child . . . They and I have been perfectly well. I, since I left the Sanatorium, have had nothing to remind me of my former trouble. Sleep always with open windows and have had no cause for calling in, or upon, a doctor." This patient wrote us an eight-page letter full of his experiences since leaving the Sanatorium.

A TEMPERANCE LECTURE.—As a contrast to the above reports take the case of K. D., married, six living children, five dead children. First seen by us June, 1910. The record says, "drinking considerable, chewing five plugs of tobacco a day." Admitted to North Reading August 13, 1910. An advanced case. Discharged October 21, 1910, "improved, against advice." Patient told us he wanted to go to work. We expended much energy in the effort to reorganize the family situation. The burden of a drinking, consumptive father was too heavy. Admitted to Lakeville December 28, 1910. Not working in meantime. The wife reported that patient could always get something to drink. Discharged from Lakeville July 28, 1911, "improved, for misconduct." The patient was reported to have choked an orderly. The social service worker records "evidently an obstructionist." March, 1913, the wife reported to the visitor that the patient had been arrested for drunkenness and committed to the State Farm at Bridgewater. From there we found he had been sent on September 4, 1912, to the Prison Camp and Hospital at West Rutland, admitted as a moderately advanced case. Discharged arrested on August 16, 1913. Had been working

on the farm for sometime previously. This man has spent 21 months under State care; nine months and one week at a sanatorium, almost a year at the Tuberculosis Prison Hospital and Camp. I think the superintendents of the State Sanatoria would tell us that the alcoholics make the poorest patients, do the worst, and give the most trouble.

A BORN FIGHTER.—C. T., single, 41 years old. Admitted August 22, 1910. A moderately advanced case. Remained as a patient 14 months. After 13 months he writes: "It is strange to me I have never had a sick day or a temperature since I came, but still I don't seem able to shake the germs. It's a funny disease. But it's a long lane that has no turn." Discharged October 28, 1911, and remained at the Sanatorium to work. Worked there about 10 months when he left to try for work elsewhere. October 11, 1912, writes, "last August I left the Sanatorium to try for work in a mill, only just got a job. On going to work yesterday morning raised a little blood and last night had a sweat. Have worked just one day. I have no money and know no one that can give me any. Do you wonder that I am discouraged?"

This patient was later admitted to Westfield in the autumn of 1912. May, 1913, he writes from the sanatorium: "I went to work here May 24. I have charge of the boys' camp, 41 beds, half of them under 10. A boiler factory cannot boast of more noise. I like it first rate, the position, I mean, not the noise. I bathe about one-half the children, those under 10, take care of the laundry, make them keep tidy, get them to meals and to school."

LEARNT HER LESSON WELL.—W. T. is a good example of the use of the Sanatorium for the purpose of education. Married, 38 years old, five children. Under observation in our tuberculosis class both before and after going to the sanatorium. Was at Rutland about five weeks, an incipient case. Discharged "arrested" 1907. "Left because husband was tired of doing without her." Not seen for three to four years. December, 1912, she came to the hospital and reported. "My health is excellent. I have slept out of doors since leaving the Sanatorium and carried out the treatment."

FREQUENT RE-ADMISSIONS.—G. T., single, 22 years old, admitted first as incipient case, but with tuberculosis of the spine. Re-admitted five times. These are the dates of admission and discharge:

1. Ad. October 20, 1908, incipient.
   Dis. October 23, 1909, "arrested."
2. Ad. June 28, 1910, moderately advanced.
   Dis. October 17, 1910, "improved."
3. Ad. June 1, 1911, moderately advanced.
   Dis. November 1, 1911, "improved."
4. Ad. June 7, 1912, moderately advanced.
   Dis. October 1, 1912, "arrested."
5. Ad. June 11, 1913, incipient.
   Dis. October 1, 1913, "arrested."

The fourth and fifth admissions do not fall within our tabulations. I give them here to complete the illustration.

This patient spent 28 months at the Sanatorium in all. Was sent South in the winter by a philanthropic person interested in his welfare and returned to the Sanatorium as to a summer resort. The lung lesions were comparatively slight. It might be questioned whether it was wise to use a bed at the Sanatorium so long for such a case.

"DEMORALIZED."—X. C., married, 29 years of age. Was at Rutland between three and four months, an incipient case with a very good prognosis. Discharged, "arrested," in the summer of 1909. When he came to the hospital in answer to our request he reported that he had been afraid to work since discharge, except on part time occasionally. The physician said he was in excellent condition. He is a big stout man. This patient may be constitutionally lazy, but did not so impress us. He seemed relieved and cheered when the doctor prescribed work and plenty of it.

COMMENTS.

The number of cases of pulmonary tuberculosis throughout Massachusetts has been computed at 10,000-12,000 yearly. Up to 1909 there were 350 beds available at a state sanatorium. This number has been increased until now there are about 925, or provision for 9.2+% of the phthisis cases, taking the minimum number of 10,000. We secured state sanatorium care for 419, or 16.3+%, of the 2564 phthisis patients referred to us during the six-year period. It is apparent that the state sanatoria have, so far, played a relatively small part in caring for individuals. Their educative value cannot be computed. The discharged patients have carried the gospel of hygienic living to thousands. The day seems still distant when state care for the phthisical patient will be so organized that private societies can withdraw from the field. Only in few, if any, localities is municipal work able to fill the gap. The state should encourage and help to standardize all forms of private effort in order to secure the maximum of result with the minimum of duplication. Private dispensaries, tuberculosis classes, anti-tuberculosis societies, private sanatoria, day camps: we need them all. How else could we have even attempted the care of our 83.7+%?

We should like to make a study of a group of the patients put on the waiting lists for state sanatorium care and not admitted. They would offer about the same sort of material as our 419 patients. Many of them remained at home, some under the care of private physicians. A later study of patients discharged from the four state sanatoria would be valuable and should be done in two or three years. It would be a fairer test, as the cases would be less selected than our 419.

I regret that we did not attempt to obtain more data about the 419 patients. For example: What proportion of these patients had a family history of tuberculosis? How many returned to their former environment, both as to home and occupation? With the exception of the dangerous trades, there is a growing tendency to encourage patients to return to their former work, and to concentrate social effort on the regulation of the other sixteen hours a day. There is not much statistical evidence as to the comparative merits of these plans.

We thought it would be of interest to find out how many of the 323 patients had some other disease, or tuberculosis elsewhere than in the lungs. We disregarded certain illnesses, as chronic rhinitis and chronic laryngitis, also "debility" and pleurisy. In only 50 patients, or 18.5+%, could we find any evidence of serious complication, although we searched both the sanatorium and the hospital records. As the autopsy table furnishes proof that the great majority of cases of phthisis have tuberculosis elsewhere in the body, it is fair to assume that these 419 patients did not receive a thorough physical examination.

In attempting a study like this, one naturally turns to work along similar lines both for inspiration as to methods and comparison of results.

The difference of the methods employed and the numbers and class of patients dealt with makes any real comparison difficult and misleading. We found the work of Dr. Noel Bardswell,[1] Dr. H. M. King,[2] and Dr. A. P. Francine,[3] especially helpful, and I take this opportunity of acknowledging our obligation to these gentlemen.

Dr. King and Dr. Bardswell, for the most part, did not deal with indigent patients, and they all had the great advantage of a yearly report in compiling their statistics. Their analysis was based, in great part, upon medical findings, and so is more valuable. Our ultimate results, however, are somewhat similar. Dr. Bardswell says his statistics show that 50% of his patients will be in good health 4-9 years after discharge. Dr. King that 28.33% were in a satisfactory condition of health 6-9 years after discharge; only 25% of these were indigent patients. Dr. Francine shows that 51.85% were in good health 4 years after discharge; these were all indigent patients. We found 46.4+% of our indigent patients leading normal lives from 6 months to 7 years after discharge, and 23.5+% 4-7 years after discharge.

Many others have been engaged on this study besides myself. I want particularly to acknowledge my indebtedness to the following: Dr. R. C. Cabot, without whose encouragement and financial aid the work could not have been undertaken; Mrs. W. A. Hinton, and the unpaid workers who did most of the visiting; Miss Ethel Chase, to whom I owe a particular debt of gratitude. She has freely given much time to compiling and arranging the statistics, and in helping me to present the results of our study. I could not have carried the work to completion without her assistance.

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[2] A Preliminary Study of the Value of Sanatorium Treatment. Herbert Maxon King, M.D., Loomis, N. Y.

[3] Results on January 1, 1913, in Philadelphia Patients Discharged from Mont Alto in 1909. Albert Philip Francine, M.D., Philadelphia.

Clinical Department.

ILEAL STASIS.

Report of Thirty-three Cases.

By Gerald Blake, M.D., Boston,

Assistant Physician to Out-Patients, Massachusetts General Hospital; Assistant in Medicine, Harvard Medical School.

From the great amount of bismuth x-ray work done on the gastro-intestinal tract during the last few years, in normal cases as well as in those showing symptoms, certain standards have been established which are now generally accepted. It is found that the small intestine normally empties itself of bismuth in less than nine hours after the taking of bismuth by mouth. The presence of bismuth in the ileum more than nine hours after ingestion indicates a delay in the passage of the intestinal contents which is called ileal stasis. This is a functional disorder and may appear as the only abnormal condition present in the case. As a rule, however, it is a symptom or sign of some underlying pathological change, *e.g.* adhesions, inflammation or obstruction.

Analysis of the first 33 cases which showed an ileal stasis of nine hours or more by bismuth x-ray examination at the Massachusetts General Hospital gives results which seem of sufficient interest to warrant publication. As will be seen, the cases were subjected to examination for a variety of conditions—the diagnosis in those cases not operated upon being that given at discharge from the hospital after careful study in the wards. It should be borne in mind that in the great majority of the cases ileal stasis was but one of many abnormal conditions found at x-ray examination. Diagnosis made in this series of 33 cases was as follows:

Adhesions, 8,—

with intermittent hydronephrosis	1
with enteroptosis	1
with cerebral syphilis	1
with congenital syphilis	1
question of adhesions	1
with chronic appendicitis	1*
adhesions	2

Appendicitis (chronic), 4,—

with lead poisoning	1
with gastric neurosis	1
with adhesions around gall bladder	1*
chronic appendicitis	1*

Cholelithiasis, 2,—

with question of chronic appendicitis	1
cholelithiasis	1*

* Operated.

Constipation, 3,—	
with gastric ulcer	1
constipation	2
Chronic hepatitis with pigmentation	1
Debility, 1,—	
with gastric neurosis	1
Duodenal ulcer, 1,*—	
Neurosis, 2,—	
with menopause,	1
neurosis	1
Neurasthenia,	1
Ptosis, 4,—	
visceroptosis	2
with cystitis and senility	1
gastroptosis and debility	1
Epigastric and inguinal hernia	1*
Renal calculus and pyelitis	1*
Stricture Tb. of ileum	1*
Tabes dorsalis	1
Tb. peritonitis	1*
Stricture descending colon	1

Five of the above cases had been operated upon in the past for appendicitis as follows:

Adhesions.
Adhesions and intermittent hydronephrosis.
Cholelithiasis.
Pelvic adhesions with congenital syphilis.
Renal calculus and pyelitis.

Five of the cases showed ileal stasis of twenty-four hours or more as follows:

Man, aged 53—diagnosed chronic appendix and adhesions around gall-bladder.*
Woman, aged 21—constipation.
Woman, aged 24—gallstones. Question of appendix.
Woman, aged 29—gastric ulcer.
Woman, aged 42—neurosis.

This last case showed a stasis of 72 hours. The symptoms were not marked, however, and operation was not considered advisable.

Thirteen of the cases (40%) were in men; the ages ranging between 20 and 53, of which 6 or 48% were between the ages of 20 and 30.

Twenty of the cases (60%) were in women; the ages ranging between 21 and 63, of which 7 or 35% were between the ages of 20 and 30.

The series of cases divides itself naturally into certain groups which may be described as follows:

Group 1. Those cases in which ileal stasis is the only abnormal condition found. (Diag. constipation, 2 cases.)

Group 2. Those cases in which there is obstruction or inflammation at or beyond the lower end of the ileum; a group in which the condition of ileal stasis is due to obvious mechanical causes. (Diag., adhesions, 8; appendicitis, 4; tb. peritonitis, 1; tb. strict. ileum, 1; stricture descending colon, 1,—15 cases.)

Group 3. Those cases in which there is loss of nerve or muscle tone in the small intestine, together with the cases of ptosis which are largely due to lack of tone in certain structures or to faults in posture. (Diag., ptosis, 4; neurosis, 2; neurasthenia, 1; tabes dorsalis, 1; debility, 1,—9 cases.)

Group 4. Those cases in which there is delay in emptying the stomach with an accompanying delay in the passage of contents from the small intestine. (Diag., duodenal ulcer, 1; gastric ulcer with constipation, 1,—2 cases.

Group 5. Those cases in which the primary pathological condition seems distinct from the condition of ileal stasis; in which he may consider ileal stasis merely coincident. (Diag., cholelithiasis, 2; chr. hepatitis, 1; epigast. and inguinal hernia, 1; renal calcu. and pyelitis, 1,—5 cases.)

Groups 2 and 3 require no comment, the condition itself being sufficient to cause ileal stasis.

Group 4 suggests the type of case written about extensively by certain observers, notably Lane and Jordan in England, who believe that the pull exerted by the sagging loaded terminal loop of the ileum on the root of the mesentery causes a partial obstruction of the duodenum and resulting delay in the passage of food from the stomach together with gastric symptoms. It is noticeable in the cases of pure ileal stasis that the symptoms resemble closely those of certain stomach disorders—notably hypersecretion and hyposecretion. I have included in this group, however, only cases which appear to have a definite pathological lesion in the stomach or duodenum so that it seems fair to assume that the stomach condition is the important factor and the ileal stasis shown is a result of delay in the passage of contents from the stomach. This cannot, however, be conclusively demonstrated by the small number of cases reported in this series; and the fact that ileal stasis *per se* offers similar gastric symptoms makes the consideration of the type of case worthy of closer analysis when a large number of results is available.

What relation, if any, there is between the primary pathological condition in Group 5 and the accompanying ileal stasis is not clear. Certain of these cases would possibly come under Group 3 if careful analysis were made into the question of loss of nerve or muscle tone—ptosis—etc. The others show no probable relationship and are probably examples of a comparatively large group in which ileal stasis is not a prominent cause of symptoms and is merely coincident.

The symptoms of the two cases of simple ileal stasis were chiefly referred to the stomach—the most marked symptom being distress in epigastrium within one hour after meals. There was moderate constipation in both cases.

A brief review of the commoner symptoms found in the cases is of interest:

* Operated.

		Cases.	%
Constipation		19	57
Constipation alternating with diarrhea		3	9
Gas (in epigast. within one hour p. c.)		16	48
Pain		26	78
Epigastric pain		19	57
Pain, rt. iliac fossa		4	12
Pain in left lower quad.		2	6
Pain in both flanks		1	3
Nausea		6	18
Vomiting		15	45
Stomach contents	High acidity	8	24
	Normal acidity	8	15
	Low acidity	6	18
Diarrhea		1	3

Of gastric contents analysis only one was markedly high and one markedly low. The others were within what may fairly be called high normal and low normal limits. No case showed food residue in the fasting stomach.

The two most common symptoms found in this series of cases were constipation and epigastric pain or distress shortly after meals. Constipation is a natural cause or sequel of the condition of stasis. The relative frequency of the epigastric pain immediately after meals may be accounted for either by the constipation or the theory that ileal stasis produces some degree of obstruction in the duodenum by the pull of the loaded sagging ileum on the root of the mesentery. The nausea and vomiting are probably in relation to the amount of obstruction thus caused and subsequent change in the stomach function. It is fair to say that the degree of variation in the results of analysis of the gastric contents is scarcely proportionate to the severity of the gastric symptoms.

Noticeable is the relatively small number of cases showing alternating constipation and diarrhea which might be expected to occur where there is much fermentation of food residue in the small intestine.

TREATMENT.

Medical. The medical treatment resolves itself into an attempt to restore the inefficient bowel to its normal function. Relief of constipation over a long period of time may of itself be a curative measure, and this has been best accomplished by the use of some of the mechanical agents for moving the bowels, preferably, Russian oil in ½ oz. doses two or three times a day, or Agar Agar in 2 dram, doses T.i.d. or both together, with a diet aimed at relief of constipation and general hygienic and tonic measures to strengthen the weakened tissues.

Mechanical. It is noticeable in x-ray examinations of these cases that the last loop of the small intestine, as a rule, runs up from the pelvis and joins the large intestine at an acute angle rather than at a right angle. Some form of abdominal support is therefore often desirable to aid in holding the small bowel more nearly up in normal position. A webbing belt or swathe passing around the body between the crests of the ilia and greater trochanters of the femurs has been found to be of value. Faults in posture should be corrected by appropriate exercise and apparatus. Rest in a recumbent position after meals is of value as aiding the stomach and intestine to empty themselves, and such exercise as is indicated to strengthen the abdominal muscle and make a firm abdominal wall will aid in holding the small intestine in place.

Surgical. Should these methods prove inefficient and the nerve element be not considered too great a factor operative interference is advisable in the individual case. Where the condition is an aggravated one—where a band or kink is obvious—or where there is obstruction from other causes not to be remedied by non-surgical measures an operation should be done and at as early a date as possible. In the cases of long standing where no obvious obstruction is present but where the symptoms are marked and do not respond to medical or mechanical treatment the resort to surgical interference—short circuiting the large intestine, etc., will often establish efficient drainage of the small bowel and effect relief of the underlying condition.

CONCLUSION.

In this series of 33 cases the following facts are noticeable.

1. Ileal stasis is found,—(1) as a pathological entity; (2) as a symptom of other pathological conditions; (3) as a coincident condition in other diseases to which it is not apparently related.

2. Constipation and epigastric pain soon after meals are the commoner symptoms.

3. The stomach contents analysis is of little or no value in making a diagnosis.

4. Two cases only were of the typical primary ileal stasis type—those diagnosed constipation—although the cases of neurosis and debility (five in number) might be considered as possibly belonging to this type.

5. No case of Lane's kink was found.

6. The treatment is by choice relief of constipation by Russian oil or Agar Agar or both, together with hygienic and tonic treatment, mechanical support of ptosed structures and correction of faulty posture, surgical operation.

7. Diagnosis of the condition is made by bismuth x-ray examination.

I am indebted to Drs. Edsall, Cabot, Smith, Lord, Lee, Hewes, Williams, Codman and Whittemore for permission to use the clinical records of their cases; and to Drs. Dodd and Holmes for permission to use the x-ray records and assistance in the observation of cases.

Medical Progress.

FIFTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.

BY ROBERT B. OSGOOD, F.A.C.S.; ROBERT SOUTTER, F.A.C.S.; HERMANN BUCHOLZ, M.D.; HARRY C. LOW, M.D.; MURRAY S. DANFORTH, M.D.

(*Concluded from page 389.*)

BONE AND JOINT SURGERY.

Experimental. Cotton and Loder[30] have undertaken careful animal experimentation in order to determine which of the two prevailing theories as to the fate of bone grafts is correct. The first theory is that the bone graft is retained without essential change and that it becomes an active centre of growth. The second theory is that the transplanted bone is replaced by a newly formed bone and that the graft is merely a trellis, taking no active part in the repair. They have found that the transplanted bone becomes rapidly fixed by adhesions and that there is a change in every portion of the bony tissue. The bone trabeculae disappear and new bone substance is laid down in the centre as well as in the periphery.

Haas[31] has studied the regeneration of bone from periosteum (rabbits, dogs, and cats), taking his experimental tissue from the ribs. He concludes that the periosteum has the power of regenerating bone and that blood clot enhances this power. He has found that regeneration may occur in the absence of pre-existing bone. He has never in his experiments found bone regeneration in the absence of periosteum.

Axhausen's[32] experiments with the transplantability of joint tissues are interesting and seem to agree with the work of Cotton and Loder as far as the bone portion of the transplant is concerned. He used the lower end of the femur in rats and the patella or pieces of the epiphysis of the femur in rabbits, transplanting these into the subcutaneous tissue of the back of the same animal, making his subsequent examination at periods varying from 3 to 100 days. He believes that in these animals his researches have shown (1st) that bone tissue is not transplantable in a histological sense, and that it undergoes an aseptic necrosis; (2nd) that medullary tissue is transplantable and that joint cartilage is transplantable both histologically and practically; (3rd) that epiphyseal cartilage is transplantable in a histological sense but not enough for practical purposes.

(Ed. Note: The experiments of Soutter at the Harvard Medical School confirm Axhausen's finding in relation to the transplantation of cartilage in dogs.)

Henle[33] reports six cases in which he has employed a method somewhat similar to the Lange method of local splinting of the diseased area in tubercular caries of the spine, except that he employs two grafts of bone removed from the tibia instead of the tinned metal wire splints of Lange. These grafts are placed one on either side of the freshened spinous processes or, where there is a considerable kyphos, on to the laminae. The bone is sutured in place by fixing it to the inter or supra spinal ligaments. He keeps his cases in plaster from two to six months.

Two remarkable cases of joint transplantation are reported by Tuffier,[34] one in a man of 23 who had had an ankylosed elbow for two years. The ankylosed joint was resected and a tibio tarsal joint removed from an amputation in a woman was sutured in place. This case is now 18 months old and the arm is said to functionate well. The x-ray of the transplanted joint seems to show no change in its contours or structure. His second case was that of a man with advanced tuberculosis of the elbow, and the same type of graft was used in this case, having been recovered from a leg amputated five days previously and kept in cold storage. He reports that this joint also has shown no change since transplantation and that the function has been excellent for fourteen months.

Taylor[35] still employs his yellow wax, (one part with 5-10 parts lanoline, melting at 130° F., and sterilized in an autoclave thirty minutes), in the treatment of ankylosed joints, reporting seven cases of fibrous ankylosis in which he has regained motion. We have not seen reports of the use of this original method by other surgeons.

Murphy's[36] report of some 16 cases of arthroplasty by his method of pedunculated and occasionally free fascia flaps includes nearly all the joints of the body except the shoulder, and the results appear surprisingly good.

(Ed. Note: Not the least valuable portion of the article is a plea for the prevention of ankylosis in these infected joints by rational methods of preventive treatment. Far too many acute non-tubercular joints are fixed by splints or plaster bandages and allowed to remain fixed until firm fibrous ankylosis has occurred. We wish again to state our conviction that acute joints which do not rapidly quiet down under rest should be opened, washed out, and sewed up, and that passive motion in all should be begun at the very earliest moment. The results by and large in the most important joints of the hip and knee from arthroplastic operations are still too uncertain for any neglect of these preventive measures.)

The accurate pathology of "snapping hip" has been so often doubtful that a case reported by Binnie[37] represents an important contribution to the subject. Binnie's patient, when carrying a heavy weight or leaning to the right, felt a rubbing over the right iliac crest and on

jumping or suddenly twisting his body he often felt a sharp audible click as if the hip was dislocated. At operation a rolled up fold of fascia along the anterior border of the gluteus maximus was found, which fold slipped over the greater trochanter. By suturing this to the vastus externus the symptoms were relieved.

Magunson[38] has continued his experiments on dogs in relation to the lengthening of shortened bones of the leg by operation, employing carefully devised ivory screws. In the dog the femur can be lengthened ⅜ to ½ an inch without injury to vessels or nerves, and in man he believes 2 to 3 inches might be safely gained. He finds the ivory screws are later absorbed.

SCOLIOSIS.

Perhaps no question in orthopaedic surgery is more important at present than the question of how much may be expected in the way of immediate and permanent correction of the fixed scoliotic curves, by the newer methods of applying plaster jackets in flexion devised by Abbott and Forbes. It may be of interest, therefore, for us to report the opinion of men who have had experience with the method.

Vulpius,[39] in April, had used Abbott's method in 25 cases, and came to the conclusion that with the use of Abbott's table and a correct technique, over-correction is possible in certain cases, and a degree of correction may be obtained which heretofore was impossible. He considers that pressure sores are dangerous and warns against a too early giving up of the plaster cast. He believes that it is still impossible to offer a conclusive judgment as to the permanence of the method.

Joachimsthal[40] has tried the Abbott method in thirty-six patients, varying in age from 8 to 20 years. All of them had fixed curves and had been treated previously without marked results. He finds the total curvatures and those in which the dorsal curve predominates as most amenable. He considers the immediate results surprisingly good in regard to the shape of the thorax, but they are to be explained to some extent, he thinks, by the making of a compensatory curve of the lumbar spine. He still feels somewhat sceptical concerning the final results.

Kleinberg[41] in America has had a very large number of cases (85) under treatment by the Abbott method. He has followed some 40 of these closely and reports 31. He considers the method severe, necessarily prolonged, but capable of giving good results, especially in the milder cases. Of these 31 cases, 10 gave up the treatment after two months. He believes certain cases may be overcorrected, but is not sure that relapses will not occur. He thinks that many can be put in a better attitude, perhaps by the development of compensatory curves.

Whitman[42] believes that Abbott has shown a new surgical principle of treatment that will lead to a great advance in correcting the deformity of scoliosis. He considers that Abbott himself is rather optimistic and he appreciates the limitations of the method, yet he thinks it will be effective in certain cases.

Stern[43] from his experience with a few cases considers Abbott's method the best we have at present.

"*Sciatic Scoliosis.*" Bucholz has made a very thorough study of the phenomenon called sciatic scoliosis. There has been much literature on the subject, especially in Europe, but comparatively little light has been thrown on the etiology or the treatment. Bucholz has selected 174 cases showing deviations of the spine from 761 lesions of the sacro lumbar and sacro iliac regions and has carefully analyzed them. He concludes that not one peculiar, but many, lesions may cause a deviation of the spine, sometimes to the right, sometimes to the left, sometimes total, sometimes with compensatory curves, sometimes changeable by manipulation from one side to the other. He has demonstrated cures in certain obstinate cases by a special method of recumbency with traction and hyperextension of the affected leg. In other cases massage, exercises, and manipulation are indicated, and in others fixation.

(Ed. Note. The anatomical study of the region of the fifth lumbar and sacrum is of utmost importance in these severe back cases and the correct interpretation of the x-rays in the light of clinical signs is being, we believe, gradually attained. While these so-called scolioses do not belong at all in the same class as the structural curves of adolescence, yet their cause may lie in the same region as the numerical variations which Böhm found associated so frequently in the structural cases. Goldthwait has demonstrated the prevalence of these varying articular and transverse process shapes and explained their bearing on back strain, and Adams is finding that the vast majority of the cases of scoliosis under treatment by him in the Orthopædic Clinic of the Massachusetts General Hospital have some abnormality of shape or articulation, the significance of which is gradually being learned.)

FRACTURES AND DISLOCATIONS OF THE SPINE.

Malkwitz[45] reports nine cases from Hoeftmann's clinic of total dislocation of the cervical spine without symptoms of injury to the spinal cord. Clinical and x-ray observations as well as experiments on the cadaver show that a total dislocation of the cervical spine does not necessarily produce a lesion of the spinal cord. Frequently the posterior roots and the spinal ganglia are injured and cause lasting symptoms. The spinal cord in these cases may show an S-like curve. The author believes that the reason why an injury of the spinal cord does not always take place is to be seen in the marked

tilting of the posterior part of the displaced vertebra in anterior dislocations, and vice versa in posterior dislocations. In two of his cases a simultaneous fracture of the arch of the vertebra occurred also, which may be another reason for the absence of cord compression.

(Ed Note. Corner[46] and Mixter and Osgood[47] have reported series of cases of fracture and subluxation of the upper cervical vertebrae without immediate symptoms of cord compression, but the danger in these cases where there are no immediate symptoms is the gradual development of a myelitis from irritation and late bony proliferation. These late and sometimes fatal symptoms have ensued months and even years after the injury and indicate the necessity of exact diagnosis, exact replacement and freedom from irritation accomplished by fixation for a long period after the accident.

Lewandowsky[48] emphasizes the importance of a careful consideration of the clinical symptoms after a back injury in which x-ray picture may reveal nothing absolutely positive. He believes that compression fractures, especially of the lumbar vertebrae, are not uncommon and can only be surely diagnosed by clinical symptoms, but can be frequently confirmed by very careful x-ray examination. On the other hand Rhys[49] cites six cases of what in the x-ray plates appear to be definite fractures of the transverse processes, a distinct gap appearing between the "fragment" and the base. Three of these cases showed a displacement of the outer end up or down. Two cases showed thickened edges of the "line of fracture," suggesting a callous or a joint. These six cases he considers to be only pseudo fractures and to represent imperfect ossification or epiphyseal displacements due to the pull of an attached muscle. Only two of his cases had any history of injury and these injuries were slight. These epiphyses may not ossify until the twenty-fifth year and incomplete ossification may account for the gap.

(Ed. Note: Any large series of good x-rays of the lumbar spine is likely to show gaps of incomplete ossification of the transverse processes and occasionally of several of the transverse processes and on both sides. While we believe true fractures of the transverse process may and do occur, the importance of discriminating between these rare fractures and the commoner abnormalities of ossification is at once apparent in relation to workmen's compensation laws and possible operative treatment.)

MISCELLANEOUS.

Hawley[50] has invented an orthopaedic table which is most easy of operation and most skillfully devised. It meets the various requirements for the treatment of fractures and various orthopaedic conditions demanding fixation, traction, and the application of plaster to the trunk and lower limbs better than any table with which we are familiar.

Newton[51] has conducted an experimental investigation on concussions of the spinal cord. The spinal cord was exposed by laminectomy in the mid dorsal region in three monkeys, 8 dogs, and 39 cats. He has been impressed by the extreme sensitiveness of the cord to slight degrees of compression and concussion and by the considerable disturbance of function with very slight anatomical changes. As a result of his work he has come to believe that there are organic reasons for the symptoms of "railway" and "traumatic" spines, and that very slight effusions or hemorrhages from moderate trauma often cause marked disturbances.

There has been much discussion as to the most advantageous position in which to apply fixative treatment to the spine. Allison and O'Reilly[52] by means of x-rays taken in a special frame for the purpose of accurate comparison have studied the effect of various methods of traction and hyperextension in a case of old Pott's disease with considerable deformity and in the normal child. They conclude that vertical traction with hyperextension gives the best position of the vertebral bodies.

Goldthwait[53] believes that orthopaedic principles should be applied to the treatment of abdominal visceroptosis and chronic intestinal sepsis. It is evident that associated with these conditions are constantly found most extreme cases of faulty posture and frequently the chronic arthritides. He is convinced that by the remodelling of the body by means of positional bed treatment, apparatus, and exercises the faulty posture may be corrected, the ptosis improved, and what is more important, the general health of body and mind immensely changed for the better. Frequently the chronic joint symptoms disappear, and while congenital abnormalities may still condition to some extent the patients' complete return to robust health, these individuals may still be enabled to lead active and useful lives.

The importance of attacking these problems early is emphasized by Vorechelli[54] in a study of the etiology and therapy of dorsal curves. An observation of 906 pupils of elementary schools for girls and boys showed only 37% who were considered normal; over 27% who had varying degrees of what he calls flaccid dorsal curves or "respiratory dorsal curves" with asthenic thoraxes, and over 14% showed some degree of real scoliosis. It was of interest also that the flaccid dorsal curve is most frequent among the little children of the elementary classes, while the scoliotic deviations occur in the older classes, the inference being that the flaccid dorsal curve frequently changes into the scoliotic. Exercise in the open air he believes

to be the rational treatment and the benefit of this he has demonstrated.

Less has been written concerning the "congenital flat-foot" than concerning the congenital club-foot, and it is not rare to find neglected cases of the former condition. Legg[55] believes that a foot which by the third or fourth year has not developed a longitudinal arch, and whose scaphoid bone is not raised from the level of the sole, will gradually develop bony changes in the tarsus and remain flat permanently. He recommends the transplantation of the tibialis anticus to give a more correct pull. He reports ten cases with good results.

Kuelm[56] calls attention to the benefit attained in the case of a man of 68 suffering from intermittent claudication by the use of the faradic current applied while the legs were immersed in warm water. The case is interesting since the relief had lasted for six years at the time of reporting, and the pulse, imperceptible at first, became palpable again after twelve sittings.

(Ed. Note: The relief of this condition in our experience hs been most difficult and the condition is distressing. In two instances lasting relief has been obtained in our hands after the use of light electric vibration and with the report of Kuelm's case we should certainly attempt to stimulate the circulation by gentle methods of hyperaemia.

Drs. Dufour and Bertin-Mouret[57] report a case of Paget's disease in a woman eighty years old. The age of onset was unusual, beginning in her sixty-eighth year. The extreme pain in the extremities was sufficient to make her apply for admission to the hospital. After a positive Wassermann reaction three doses of neosalvarsan were cautiously given with intervals of twelve and thirty days. The pains disappeared and the case improved. The case is noteworthy on account of the treatment and improvement and also on account of the age at which the neosalvarsan was used.

M. Gangolphe[58] reports a case of pretabetic osteoarthropathy in a syphilitic fifty-seven years old, who had a partial absorption of the astragalus and bony proliferation around the lower ends of the tibia and fibula, following a fall. There were no medullary symptoms present, except impotence.

Mintz[59] has treated four cases of lesions of the tibial tubercle of the type of the so-called Osgood-Schlatter disease. He believes that the cause is not a partial avulsion of the tubercle, but that some unknown cause produces atypical bone formation. With the end of the growing period the disease stops. He operated upon two of his cases and the microscopical examination showed rarefaction, osteoclasis, and new formation of osteoid tissue and bone. He calls attention to the fact that similar lesions are found in other places as well, for example, at the epiphyses of the base of the fifth metatarsal bone and at the olecranon.

(Ed. Note: We admit that the exact cause of these lesions is not apparent, but it is a significant fact that they usually occur in active athletic adolescents or pre-adolescents, and only as far as we are aware at the points where powerful muscles are attached. We have a case under observation at present who presents these lesions at one tibial tubercle, the base of one fifth metatarsal, and at the apophysis of one os calcis. We are therefore inclined to believe that strong muscle pulls on appropriately formed growing bone centres, plus perhaps some not understood individual peculiarity in the structure of the epiphyses are the chief factors.)

Musgrave, Sison, and Crowell[60] have made x-ray and microscopical studies of twelve cases of bone lesions following smallpox. The long bones and their joints are most commonly affected and the lesions are always found in persons who have had the disease in early life, in none of their cases after 14 years of age. The diaphysis is shortened and the epiphyseal region distorted. The condition is evidently due to some change at the epiphyseal line which prevents the growth of the shaft. The contour of the shaft and its structure are unaltered. No microscopical changes were found.

Symmes and Wallace[61] have found pathologic changes in the thyroid glands in the cretinistic variety of chondrodystrophia foetalis and they recognize in these cases a type of chondrodystrophia in which the modifications in the soft tissues are comparable with those generally admitted to be due to defects of the thyroid gland.

(Ed. Note: Certain of the dwarf characteristics of the achondroplastic individual may be roughly compared to the peculiarities of the cretin. It seems most probable that there are some of these abnormal human variations that are deficient at the same time in many ways and we should expect dyspituitarism to be associated with disturbed secretion in other ductless glands. If we recognize achondroplasia as caused by a restriction of the activity of the hypophysis due to early ossification of the tribasilaris we may expect that in these cases various abnormalities may co-exist. Changes in the thyroid may be one of those concomitant abnormalities.)

Matts[62] has studied the changes in the bones of young dogs after excisions of the thymus gland. After complete excision there were distinctly progressive changes in the skeleton consisting of softening and bowing of the bones. This went hand in hand with a very marked weakness of the muscles and resulted in complete cachexia with impossibility of locomotion. Under the microscope a distinct similarity to rachitic changes was observed, evidenced by the

occurrence of limeless bone tissue of very large extent. This change was caused by resorption of calcified bone and extensive new formation of osteoid tissue. From this morphological similarity of the processes after thymus excision to the changes in human rickets, it is not conclusively proved that both processes are of the same nature, but the similarity is at least suggestive.

(Ed. Note: An interesting case in this connection has been observed by the editors which seems also possibly suggestive. An operation was performed for the correction of a disabling coxa vara in a case of marked adolescent rickets. A septic infection at first mild but uncontrolled by free drainage occurred, to which the boy succumbed. At autopsy a very large thymus gland and a status lymphaticus was found.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

Twenty-eighth meeting held at the Boston Medical Library, December 12, 1913.

FRITZ B. TALBOT, M. D., SECRETARY.

DR. THEODORE W. ELY read a paper entitled

ALCOHOLIC CIRRHOSIS OF THE LIVER IN CHILDHOOD WITH REPORT OF TWO CASES.

Abstract: The paper contained a brief review of the literature on the subject with a resumé of the general symptomatology. Two probable cases in twin boys of four years, and the post-mortem findings in one of these cases were reported.

DISCUSSION.

DR. HOWARD T. KARSNER: Unfortunately, it was not possible to give Dr. Ely the description of histological material in the autopsy report. Grossly, the liver is not the "hob-nail" liver commonly seen in alcoholic cirrhosis and microscopically there is nothing in the nature of hyalin or other change to indicate a typical alcoholic form. To the contrary, the histological picture is that of cicatrization and attempted repair following an extensive acute destructive lesion similar if not identical with acute yellow atrophy. That alcohol can produce such a destructive change has not been demonstrated and therefore the etiological agent in this case must remain in doubt.

DR. ELY: I have nothing to add except to say that cirrhosis of the liver due to other cause was ruled out from the fact that the evidences of liver impairment were present before the attack of measles. Aside from this acute infection, I think all the more common causes of cirrhosis in childhood were ruled out by the history, physical findings and clinical tests.

DR. W. E. LADD read a paper on

THE TREATMENT OF TUBERCULAR CERVICAL ADENITIS IN CHILDREN.

Abstract: The various forms of treatment in vogue at the present time reviewed. He reported 83% of cures in a series of forty cases by thorough extirpation of all infected glands with the primary focus and recommended this form of treatment as it apparently yields 30 to 40% more cures than any other yet devised. Active tubercular lesions in the tonsil were found to be more common than had been previously reported.

DISCUSSION.

DR. CLEAVELAND FLOYD: I think something ought to be said on the other side of this subject. In each of the three series of cases which have been quoted, showing such a large percentage of cures, there has been one death following operation. Two of these deaths were due to acute general tuberculosis. In other words following the operation of tubercular cervical adenitis death does occur and it is not very uncommon that the local process becomes a general one. I know of several such results. No

one will deny that good hygiene is a part of any treatment of tuberculosis no matter where the disease is located.

The point made by Dr. Ladd in regard to removal of the tonsils is an excellent one. The tonsil is commonly the primary focus of the disease and should be removed in all cases. After this has been done however, the glands will take care of themselves and should be let alone.

The men in charge of surgical clinics speak of the poor results they have seen as the result of the use of tuberculin. The same thing is true of the work of the surgical clinic, in that the men using tuberculin are often called on to treat a case of tubercular adenitis after two or three operations have failed to give relief and the scars themselves have become infected. The time required to get good results with tuberculin has been urged as a point against it. In every case of localized tuberculosis prolonged observation is an excellent thing for the patient in order that his mode of living may be supervised. This far outweighs the value of the loss of time borne by the patients. If the tonsil, as the primary focus of tubercular adenitis is removed and such glands as have broken down are drained, then I believe that surgery has done all that is required. Palliative surgery with tuberculin and prolonged observation, will give more lasting results without complications, than can be obtained by surgery alone.

DR. H. I. BOWDITCH: I am glad the question of tubercular adenitis has been brought up because I think it is good to thrash it out. Some years ago, when tuberculin was first started here in Boston, I was interested in the tubercular glands of the neck at the Out Patient Clinic of the Children's Hospital, and I tried in a very small way the tuberculin injection, choosing children who had a sinus. As I remember it, they were very few in number, but they seemed to me to clear up very rapidly with the tuberculin treatment. I agree with Dr. Floyd and Dr. Ladd in having the tonsils out where they seem to be the cause of the infection, but I am not quite sure yet where surgical treatment comes in to the best advantage of the child. However, I think that the tuberculin treatment is of advantage. In other words, if you put me to the test, I should give tuberculin before I should do an extensive operation on the neck. There is another point which must be considered *i. e.*, that it is possible that some of these cases of cervical adenitis are not of tubercular origin.

DR. CHARLES G. MIXTER: The surgeon does not object to tuberculin as a medical procedure but what he believes in is that when tuberculin has been tried and the glands do not subside that the case should be considered a surgical one, and not wait for one abscess after another to appear. Then you can hope for a radical cure, for in this way you get rid of the glands.

DR. CLEAVELAND FLOYD: I was much interested in listening to Dr. Mixter's experience in having seen one abscess after another. It is rather an unusual thing with the use of tuberculin. Tuberculin is useful in the bilateral cases also, and in cases which have broken down it cleans up the sinus and we do not see a succession of abscesses. Some difficulty is experienced in a few of the cases, for it is not an uncommon thing for them to receive one or two doses of tuberculin and then disappear for two or three months, having in the meantime gone the round of the hospitals.

DR. J. S. STONE: There is one point upon which we are all agreed. The tonsils must be removed. I think if we do that, and do it early enough, the end results, no matter what other treatment is added, are going to be much better.

DR. LADD: I think Dr. Floyd has brought up a question of surgical accident which has always been a drawback to surgery. We all have to admit that we do occasionally lose cases through surgical accident but I do not think that the results with tuberculin are convincing enough for us to give up surgical measures in these cases. The question of abscesses not following one after another in his experience I think is rather unique. I have seen a good many cases treated with tuberculin, and I have been in a position where I have had to dress them for the medical men, and have had not a few dressings to do in some instances. With regard to the question of stirring up a general infection, I think this is a very good one but it is uncommon. The tuberculosis of the neck is, in a large percentage of cases, a local thing, and the number of cases in which there is involvement of the lung or of other parts of the body is comparatively small. There are some cases in which there are involvements of the bones or joints besides the glands, or glands in other parts of the body than the neck. The few cases that I have seen that had other parts of the body affected have usually been benefited by the dissection of the neck and the removal of the tonsils.

DR. J. J. THOMAS of Boston, read a paper on

OBSTETRICAL PARALYSIS, WITH ESPECIAL RELATION TO TREATMENT.

Abstract: In obstetrical paralysis we have an injury of peripheral nerves, in the plexus, and the paralysis and atrophy are never as intense as in cases of poliomyelitis, because of partial recovery. The treatment is surgical by resection of the injured nerves by transplantation of muscles. The most effective treatment in milder cases is that by educational exercises devised to train the child to use the weaker muscles and so develop them instead of substituting the action of the stronger muscles which produces awkward roundabout ways of achieving the purpose aimed at.

DISCUSSION.

DR. WALTER B. SWIFT: I should like to ask how Dr. Thomas would account for the recovery in these cases of obstetrical paralysis. Is it a regeneration of neurones or a resumption of function where fibers have been temporarily merely functionally involved, or is the recovery a muscle change?

DR. J. S. STONE: Anything which causes muscular relaxation, whether it be the etherization of the child through etherization of the mother or whether it be the relaxation of muscles from asphyxia or other cause plays a very important part in the etiology. Early support to the paralyzed muscles to prevent their being over-stretched is of extreme importance. While they are paralyzed they must be supported, because recovery is much better if they are supported. The lesion is mechanical. The problem would be purely surgical if the injury was a knife-cut. The difficulties of surgical interference are that in every case some of the fibres are torn, some of the fibres are stretched and some of the fibres are pressed on by the exudation into

the surrounding tissues. If we could only tell how extensive the tearing is then the problem would be more frequently a surgical one. There is a further difficulty that in many cases the injury is in a location which cannot be reached, that is, close to or even within the foramena. Personally I hope to see more and more progress along surgical lines. The problem is a mechanical one. The difficulties in surgical treatment are now very great.

DR. THOMAS, in closing: Of course training of muscles does not cure the condition in the nerve fibres. What I think is that stretched fibres recover in time by the natural regeneration when they have not been actually torn. This recovery is proved by the regaining of some power of voluntary contraction which is practically always seen to some extent. What a system of muscle training does is to teach the child to use these weak muscles, instead of substituting awkward movements to accomplish its object, by using the stronger muscles, and in this way we develop the weak muscles. Such a method, as I have said, to be successful, should begin early, before permanent changes in the affected muscles have taken place, and they require the treatment over quite a long time.

DR. PHILIP H. SYLVESTER read a paper on

SOME TRAGIC ASPECTS OF WHOOPING COUGH.*

DISCUSSION.

DR. CLEAVELAND FLOYD: I think the first case was one of considerable interest from a bacteriological standpoint, with the appearance of a large number of cells in the spinal fluid, then the appearance of staphylococci, the case going on to be a chronic one pointing towards recovery. It is quite an unusual thing to have staphylococcus meningitis, in the first place, and to have recovery in the second. I should like to ask Dr. Sylvester if he will give us a clear idea of what we ought to do in the prophylaxis and treatment of whooping cough.

DR. L. W. GILBERT: I think that something can be done regarding prophylaxis of whooping cough in the schools. The medical examiners who go to the different schools see a great many cases of children with cough without any definite whoop. One year when I was inspecting the schools in Brookline I made it a rule that a child who coughed for three or four days should be sent home, and the result was that instead of having a severe epidemic of whooping cough in a school which generally had one, I think there were something like twenty cases that year where they ordinarily had one hundred to one hundred thirty.

DR. SYLVESTER, in closing: In regard to prophylaxis, of course we all know that it is very difficult to tell at first whether a child is going to have whooping cough or not, but when we have a cold in a child with a cough, after exposure, we are justified in isolating that child to see how it will turn out. It seems to me that the regulations regarding whooping cough should be a great deal more stringent because, as statistics show, ten thousand or more children die annually with this disease in the United States. I think our Boards of Health should adopt more stringent measures regarding the control of this disease, and have the power to isolate all cases. As far as treatment is concerned, I suppose anything that helps is treatment. I do not know of any one thing which will give results in any one case. We have to try them all out, vaccines, bands and vaccination, and when a case is severe at all, I put most of my faith in sedatives to keep down the intensity of the paroxysms and to reduce their number.

* See page 406.

Book Reviews.

Die Störngen der Männlichen Geschlectsfunctionen und ihre Behandlung, VON DR. EMIL KANTOROWICZ. Berlin, Wiener: Urban and Schwarzenberg. 1913..

In this small handbook of 118 pages the author presents in concise and readable form under clear headings many facts regarding the sexual life, both in its normal and pathological aspects. Its practical value is increased by a discussion of the treatment of various sexual conditions. It is illustrated by eleven cuts, and in general is a useful book of its kind, brevity being not the least of its virtues.

A Manual of Venereal Diseases. Introduction by SIR ALFRED KEOGH, K.C.B.; History, Statistics, Invaliding, etc., BREVET COL. C. H. MELVILLE, R.A.M.C.; Clinical Pathology and Bacteriology, BREVET COL. SIR WILLIAM LEISHMAN, K.H.P., F.R.S., R.A.M.C.; Clinical Course and Treatment, MAJOR C. E. POLLOCK, R.A.M.C. Second edition, revised and largely rewritten, with new matter by L. W. HARRISON, R.A.M.C. Oxford Medical Publications. London: Henry Frowde, Hodder and Stoughton. 1913.

This is an admirable book, written by officers of the British Army Medical Service, on the practical problems of venereal disease. Considerable space is given the the history of syphilis, leading up to the discovery of its causative organism, and to a discussion of the Wassermann reaction, which followed. Several chapters are devoted to treatment by salvarsan and neosalvarsan, and a detailed description given of the various methods of administering mercury, with their relative advantages. Gonorrhea and the less important venereal disorders are given due space. In spite of the great number of books on the general subject of which this manual treats, we are not surprised that a second edition has been demanded. Although the modest statement was made in the preface to the first edition, that the book was "intended merely to act as a convenient manual, for the use primarily of the army medical officer, to assist him in his daily work in the prevention and treatment of venereal disease," we foresee for it a field of much wider usefulness. It will be of interest to sociologists that Sir Alfred Keogh, in his introduction, asserts with assurance that the legislative control of prostitution has certainly limited the spread of venereal disease in armies.

THE BOSTON
Medical and Surgical Journal

THURSDAY, MARCH 19, 1914.

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THE COOLIDGE TUBE.

IN the issue of the JOURNAL for Jan. 8, 1914, (Vol. clxx, p. 64), we made preliminary editorial comment on the new form of Roentgen tube invented by Dr. William David Coolidge, of New York, and first demonstrated by him before a meeting of physicians, physicists, and radiographers on Dec. 27, 1913.

In another column of the present issue of the JOURNAL, we publish an article by Dr. Van Allen, of Springfield, describing in more technical detail the Coolidge tube and its scientific and clinical advantages. The early anticipations of the great value of this instrument seem to be fully realized in practise, and its employment should mark the opening of a new period in Roentgen work.

To the roentgenologists who have worked with the Roentgen tube from its earliest form up to the present wonderfully developed transformer tube with its tungsten target, the Coolidge tube is a revelation far beyond what was ever hoped for. To have at one's command an instrument which makes it possible to give absolutely accurate exposures for roentgenographic work, roentgenoscopic observations, and also to be able to give a positively accurate dose when used as a therapeutic agent, reduces roentgenology almost to an exact science.

When Dr. Coolidge's invention is used in connection with a transformer which will give practically an unfluctuating, non-impulsive, unidirectional current, with which it is possible to use a volt meter in the tube circuit giving the absolute penetration of the tube indicated by kilovolts (thus eliminating the other somewhat inaccurate methods of penetration), then conditions of perfect accuracy are realized.

We already owe much to Dr. Coolidge for his development of the tungsten anodes, used in the present transformer tubes. His latest development leaves nothing to be desired as far as the Roentgen tube is concerned. With the Coolidge tubes, the operator can now get not only homogenetic Roentgen rays, but complete accuracy of dosage. This is of the utmost importance in all branches of this field, but particularly in roentgenotherapy. In this branch of the work, much more can now be accomplished than has ever before been thought possible.

In regard to the dangers from the use of the Coolidge tube, there seems no reason to believe that they are greater than from the previous type when used by those who appreciate the fact that every Roentgen tube is a source of danger when carelessly or ignorantly operated. The amount of energy that can be obtained from this tube is almost unlimited, but is absolutely under control. The penetrating power is still dependent upon the voltage impressed on the terminal of the tube, as in the older types. But the fact that its operation is no longer dependent on the presence of vapor in the tube, that simply by heating the cathode by means of a low voltage current, the tube can be operated at any desired penetration (such penetration being dependent upon the voltage delivered to the terminals of the tube and the amount of current being dependent upon the degree of heat applied to the cathode from the low voltage current), puts into the hand of the expert an instrument of precision in which there is no danger, providing he realizes its limitations.

For a more complete technical description of the tube and its methods of use, our readers are referred to the original article by Dr. Coolidge in the January (1914) number of the *American Journal of Roentgenology.*

MEDICAL LEGISLATION. REGISTRATION OF VITAL STATISTICS.

IN the issue of the JOURNAL for Feb. 26 (Vol. clxx, p. 325), we commented editorially on the proposed bill (House No. 1348) to amend the laws of this state in relation to vital statistics.

The essential provisions of this bill are embodied in three sections, as follows:—

"Section 1. The State Board of Health shall have charge of the compilation and tabulation of births, marriages, deaths, divorce returns and medical examiner returns, shall prepare for the Secretary of State the official report on these subjects to the General Court, including therein tables and analyses of morbidity returns, and shall from time to time recommend any additional legislation that may be necessary in relation to such statistics.

Section 2. This statistical work shall be under the management of a competent physician who shall be known as the State Registrar of Vital Statistics. He shall be appointed by the Governor with the advice and consent of the Council upon nomination by the State Board of Health.

"Section 3. All copies of births, marriages, deaths, divorce returns and returns from the medical examiners, called for by law shall be sent by city clerks and other officials to the State Board of Health. These copies and returns shall be used for statistical purposes by the State Registrar of Vital Statistics and then transmitted to the Secretary of the Commonwealth for permanent custody."

At present the death certificates are analyzed, tabulated and published by the Secretary of State. The medical department of health of the state, *i.e.* the State Board of Health, has nothing whatever to do with them. Under these circumstances it is not to be wondered that the statistics do not command the respect that they did when supervised by the secretary of the State Board of Health, as they were for half a century previous to 1890. Massachusetts was the first state in the country to have vital statistics, about 1843, and the death returns then ranked first in accuracy and efficiency. It is the restoration of these conditions which is intended by the present measure quoted above.

A hearing in favor of the proposed bill was held on March 5 before the committee on public health, and at this hearing the bill was advocated by various medical organizations.

The proposed legislation on vital statistics has been approved by The Massachusetts Medical Society—through its committee on state and national legislation—by the American Statistical Association and by the Massachusetts Association of Boards of Health.

The resolutions unanimously approved by the latter association are given below:—

"Whereas, One of the most important functions of boards of health is the prompt return of reliable vital statistics, and

"Whereas, the chief factors of vital statistics, the births and deaths, are medical matters and hence necessarily in charge of physicians, and

"Whereas, By reason of the character of the data involved, their supervision and tabulation can be much better done by a physician, who has been properly trained and educated for this work, and

"Whereas, The vital statistics of Massachusetts are in charge of the Secretary of State, instead of the medical department of the State, now, be it

"Resolved, By the Massachusetts Association of Boards of Health, in annual meeting assembled that it would be for the distinct advantage of the public welfare to have the vital statistics placed in charge of the State Board of Health for their proper arrangement and tabulation previous to their being given in charge of the Secretary of State for permanent custody. By this means the vital statistics would remain in the hands of the medical profession, where they naturally belong, until they have been put in proper shape for permanent record.

"Resolved, That appreciating the importance of the desired change and of the efforts now being made to bring it about, this Association most earnestly approves of House Bill, No. 1348, which simply directs that the vital statistics of this state on their way to the office of the secretary of state shall pass through the office of the State Board of Health for the purpose of permanent arrangement and tabulation."

THE REPORTING OF INDUSTRIAL DISEASES.

AMONG the acts of the Massachusetts General Court of 1913 was one (Section 6 of Chapter 813) which provided as follows:—

"The joint board (of labor and industries, and industrial accidents) may require every physician treating a patient whom he believes to be suffering from any ailment or disease contracted as a result of the nature, circumstances or conditions of the patient's employment to report such information relating thereto as it may require, within such time as it may fix, to the state board of labor and industries, and may issue a list of such diseases which shall be regularly reported upon by physicians and may add to or change such list at any time."

Under the provisions of this section, the board passed the following regulation:—

"Under authority of Section 6 of Chapter 813 of the Acts of 1913 the Joint State Board of Labor and Industries and Industrial Accidents hereby requires that every physician treating a patient whom he believes to be suffering from

poisoning from lead, brass, phosphorus, arsenic or mercury or their compounds, or wood alcohol, or from anthrax, or from compressed air illness, to report within 48 hours to the State Board of Labor and Industries, the information relating thereto called for by the reporting blanks issued by the said Board. Every such physician is hereby requested to make reports on the said blanks to the State Board of Labor and Industries of any patient whom he treats that is suffering from any other ailment or disease which the physician believes to have been contracted as a result of the nature, circumstances or conditions of the patient's employment."

This regulation became effective on March 1, and appropriate blanks for making reports have been distributed by the board to physicians throughout the state. The attention of all is called to this new piece of medical legislation and to their duty of compliance therewith.

MEDICAL NOTES.

London Death-Rates in January.—Statistics recently published show that the total death-rate of London in January was 18.4 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 23.4 in Finsbury, a crowded central slum, and the lowest was 12.3, in Lewisham, an open southern suburb.

Xiphopagotomy.—In the issues of the Journal for Jan. 8 and Feb. 12 we commented on the recent birth of a pair of xiphopagi in France. Report from Paris states that they were surgically severed on March 4, and are both doing well. They were born on Nov. 28, 1913, and at that time weighed 10 pounds. Later report states that one of the infants has died.

Bubonic Plague in Havana.—Recent report from Havana states that a case of bubonic plague was discovered in that city on March 5, and a second case on March 10. The patients were isolated, and every precaution taken to prevent further spread of the infection. The first patient has already died, but no further cases have as yet been reported.

Injunction Against Iowa Sterilization Law.—Report from Council Bluffs, Iowa, states that on March 11 the United States district court granted a temporary writ of injunction against the enforcement of the Iowa sterilization law in a case filed at Keokuk.

Jordan Memorial Sanatorium.—The recently published first annual report of the Jordan Memorial Sanatorium at River Glade, N. B., records the work of that institution for the year ended Oct. 31, 1913. During this period 36 tuberculous patients were under treatment. The institution was created by legislative act in 1911, and the site and buildings were given by Mrs. James C. Jordan, of San Francisco. It is situated in Westmoreland County, seventy miles from St. John and twenty miles from Moncton. The first patient was admitted on March 17, 1913. Only cases in the early stages of phthisis are considered suitable for admission.

Typhoid Fever Near Montreal.—Report from Montreal on March 3 states that typhoid fever was then epidemic along the valley of the Richelieu river. A total of 400 cases has been reported. In the little town of St. John, 200 cases and 4 deaths have occurred. The infection has been traced to a polluted water-supply.

Investigation of Chinese Sanitation.—Report from Chicago on March 5 states that Dr. Harry Pratt Judson, president of the University of Chicago, has been appointed chairman of a commission of the Rockefeller Foundation to investigate medical and sanitary conditions in China. The commission will sail from New York on March 21. It will visit Paris, Berlin, St. Petersburg and Moscow on the way, and is due to reach Pekin on April 18.

Scarlet Fever in New Jersey.—Report from Florence, N. J., on Mar. 10 states that scarlet fever is epidemic in that town of 2000 inhabitants. There have been 35 cases since Dec. 1, 1913; there have been 11 deaths since Feb. 27; and 23 cases are now under observation. The local churches have been closed.

BOSTON AND NEW ENGLAND.

A Case of Smallpox in Dorchester.—A case of smallpox was recently discovered at Dorchester, Mass. The patient was removed to Galloupe's Island, and all ascertainable contacts were vaccinated.

TONSILLITIS IN WAKEFIELD.—The epidemic of tonsillitis in Wakefield and Stoneham, Mass., to which we referred in last week's issue of the JOURNAL, is reported as at an end. There was a total of about 400 cases.

MEASLES AT EXETER.—Report from Exeter, N. H., on March 6, states that measles was then epidemic among students in the local Phillips Academy. Twenty-eight cases of the disease had been reported on that date.

FIRE AT MILLET SANATORIUM.—Report from East Bridgewater, Mass., states that on March 8, five of the nine one-room houses of the Millet Tuberculosis Sanatorium were destroyed by fire, with an estimated damage of $2000. The patients were all removed to the main building.

REPORT OF THE BUTLER HOSPITAL.—The recently published seventieth annual report of the Butler Hospital of Providence, R. I., records the work of that institution for the calendar year 1913. During this period 249 patients were under treatment, over 40% of whom entered on voluntary application. A new operating room and dispensary have been established, and the new Potter Home for Nurses has proved useful and beneficial. On June 13, 19 nurses were graduated from the training-school.

BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS.—The recently published tenth annual report of the Boston Association for the Relief and Control of Tuberculosis records the activities of that organization for the year ended Oct. 31, 1913. Of the eight legislative measures advocated by the Association during this period, six were enacted into law. Lectures and exhibits have been held, 171,000 pieces of literature distributed and 1,353,969 red cross seals sold. A domestic science visitor has been employed and follow-up work maintained. The Prendergast Camp has continued its work, and during the year was used by 61 patients.

THREE CENTENARIANS.—Mrs. Columbia Parris, of Paris, Me., who is said to have been born in March, 1814, celebrated recently her supposed centennial anniversary.

Mrs. Patrick Bowe, who died recently in Woburn, Mass., is said to have been born at Dublin, Ireland, in 1810. She migrated to the United States in 1844. Her husband died in 1912, at the alleged age of 101.

Mrs. Catherine O'Neill, who died recently at Hartford, Conn., is said to have been born in 1808. She had been a widow since 1854, but always enjoyed excellent health. She is survived by an aged son.

HOSPITAL BEQUEST.—The will of the late Annie Louise Cummings, of Portland, Me., which was filed on March 5, contains a bequest of $5000 to the Maine General Hospital.

NEW YORK.

BETH ISRAEL HOSPITAL ASSOCIATION.—The annual meeting of the Beth Israel Hospital Association was held on Feb. 26, when it was reported that 46,959 cases were treated at the hospital during the year. The total expenditures were $126,522 and the receipts, $114,171, the deficit of $12,351 being made up by the board of directors. The president announced that plans had been made for the construction of a new hospital on a site a little north of the present building (on the lower east side), which is to be 14 stories in height, with provision for 500 beds. The estimated cost is $1,000,000, and of this amount nearly $300,000 has already been subscribed.

TOMBS CITY PRISON.—Many abuses having been brought to light in an investigation of conditions at the Tombs city prison, Deputy Commissioner Lewis of the Department of Correction has recommended a number of important changes in the administration of the institution. Among his recommendations is that steps be taken to establish hospital wards on the top floor of the main building, which will permit the segregation in separate wards of those suffering from tuberculosis, venereal diseases, or the use of norcotic drugs, and which will secure to all inmates decent medical service, which is now made impossible because of the lack of facilities. Another of the recommendations is that a single story building should be erected in the yard space, where visitors may see inmates without congesting the main prison, as at present, and without coming in personal contact with the inmates. This will obviate the present dangerous possibility of escapes through substitution, and also obviate all searches of visitors, which are necessarily more or less obnoxious to them. The commissioner is convinced that drugs will

be smuggled into the prison as long as visitors can come in contact with inmates, and as long as food and beverages may be purchased outside and brought in.

The Milk Situation.—The New York Milk Committee has sent to Governor Glynn a protest against the personnel of the State Milk Commission recently appointed by him, asserting that in the commission, as it now stands, seven of its eleven members really represent the interests, not of the producer or of the consumer, but of the reactionary group of milk dealers and ice cream manufacturers who resent increasing demands of the public and such organizations as the New York Milk Committee for more rigid regulations to safeguard the consumer against impure and disease-laden milk With the exception of Health Commissioner Biggs and Nathan Straus, no member of the commission, it is stated, is qualified to represent in a disinterested way the best interests of the state from a public health standpoint. The New York Milk Committee has advocated uniform state regulations requiring the pasteurization of all milk except that which is certified and the grading of milk according to bacterial standards and methods of production. It may be recalled that, in order to secure pure milk at a reasonable price for use at the infant milk stations in New York City, the committee organized an experimental company, which for two years conducted a plant at Homer, N. Y., and demonstrated that milk equal in quality to regularly certified milk could be produced and sold at a fair profit for 9 cents a quart.

Registration of Nurses.—A hearing was recently held in Albany upon the two bills, in the senate and assembly respectively, known as the Seeley and Hoff bills, which are identical in their provisions and have the title, "An act to amend the public health law, in relation to the practice of nursing." They are in every respect similar to bills which were killed in the last legislature, having for their object the creation of a high-priced nursing monopoly, for the benefit of a few at the expense of the many. They would debar, under heavy penalties, all persons except "registered nurses" from calling themselves nurses, and are strongly opposed to the public interest, since no provision whatever is made for nurses for persons of moderate means, who comprise over 90% of the population; while instruction for low-priced nurses, which for nearly ten years past has been provided by an admirable and successful institution for the purpose at Albany, is forbidden under penalty of the law. At the hearing, among those who opposed the bills were representatives of no less than thirty-eight large hospitals in New York City, including such institutions as the Roosevelt and St. Luke's Hospitals, and from Albany the superintendent of the large City Hospital.

Current Literature

Medical Record.

February 28, 1914.

1. Stedman, H. R. *The Extradition of Insane Persons.*
2. Clark, L. P. *A Further Study upon Mental Torticollis as a Psychoneurosis.*
3. Mears, J. E. *The Evolution of the Study of Anatomy and Its Important Relation to the Development of Surgical Knowledge.*
4. Balfour, D. C. *The Care of Surgical Patients.*
5. Wallace, R. *The Traumatic Neuroses, Due to Alleged or Actual Injury, from the Medico-legal Standpoint.*
6. Austin, C. K. *Eclampsia, with Total Absence of Albumin but Generalized Hard Edema (Pure Chloride Retention?).*
7. Rahmet, H. *The Causation of Dreams.*
8. Wise, F. *Lichen Planus of the Glans Penis. Its Treatment with Roentgen Rays.*
9. Coburn, R. C. *A Standard Educational Qualification for the Anesthetist.*

New York Medical Journal.

February 21, 1914.

1. Reber, W. *Glaucoma.*
2. Leszynsky, W. M. *Glioma of the Cauda Equina.*
3. Talmey, B. S. *Transvestism.*
4. Baetz, W. G. *Primary Pernicious Anemia.*
5. McMurtrie, D. C. *The Care of Crippled Children in Germany.*
6. LeFever, C. W. *The Eyes of the Neurotic.*
7. Bachmann, R. A. *The Morality of Venereal Prophylaxis.*
8. Sutter, C. C. *Natural Defenses of the Body against Disease.*
9. Macleod, J. J. R. *Recent Work on the Physiological Pathology of Glycosuria.*

February 28, 1914.

1. Duane, A. *Motor Anomalies of the Eye.*
2. *Ware, M. W. *The Futility of Phenolsulphonephthalein as an Indicator of Renal Function.*
3. Harrower, H. R. *The Properties of Parathyroid Extracts.*
4. Roddy, J. A. *The Ross Jelly Film Method in the Diagnosis of Syphilis.*
5. Todd, J. B. *A New Method of Determining the Dust in Air, and Fresh-Air Schoolrooms.*
6. Leavitt, E. J. *Diagnosis of the More Common Diseases of the Rectum and Anus.*
7. Stolaff, V. A. *Surgery in Goitre.*
8. Friedmann, J. *Roentgen Diagnosis.*

9. SEELYE, H. H. *Carbon Disulphide as a Therapeutic Agent.*

2. Ware endeavors to refute the claims made for phenolsulphonephthalein as a functional renal test. He says that the efficiency claimed for the drug because of its complete rapid elimination and its reappearance in an unaltered form cannot bespeak any elaboration in the sense of work done on the part of the kidney, for efficiency means the ratio of useful work to energy expended. The phenolsulphonephthalein test is an acidometric test, but the degree of acidity and kidney function are not necessarily parallel. The information obtained by this test is not precise. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

FEBRUARY 28, 1914.

1. *PEARCE, R. M. *The Charge of "Human Vivisection" as Presented in Antivivisection Literature.*
2. *PATTERSON, J. *An Economic View of Venereal Infections.*
3. HUNT, J. R. *The Ischemic Lumbago, a Further Contribution to the Lumbar Type of Intermittent Claudication.*
4. TODD, H. C. *The Snare Versus the Sluder Operation in Tonsillectomy.*
5. MACE, L. S. *Chronic Tuberculous Diaphragmatic Pleurisy with Symptoms Resembling Gastric Ulcer.*
6. *PIERSON, R. H. *Epidemic Poliomyelitis and Distemper of Dogs.*
7. VAN COTT, J. M., AND LENTZ, W. *Trichinosis.*
8. COOK, H. W. *Prognostic Value of Slight or Transient Albuminuria, with Special Reference to Life Insurance Examinations.*
9. SINKLER, F. W. *Interlobar Empyema.*
10. *BREITSTEIN, L. I. *Rupture of the Uterus Following Cesarean Section, with a Study of the Uterine Scar.*
11. MCGLANNAN, A. *The Conservative Treatment of Undescended Testicle.*
12. GIBBON, R. L. *Acute Intestinal Obstruction Due to Gall-Stone. Report of Case.*
13. HAZEN, H. H. *Severe Erythema Multiforme with Anaphylaxis Due to Oyster Protein.*
14. CURTIS, A. H. *Vomiting of Pregnancy Treated by Injections of Blood of Normal Pregnant Women.*
15. ALLISON, L. P. *Strangulated Hernia with Gangrene.*
16. O'NEILL, B. J. *A Case of Traumatic Rupture of the Heart.*
17. HANSON, H. B. *Fuchsin Ointment in Tinea Sycosis.*

1. Pearce's paper is a very carefully prepared answer to the popular cry of "Human Vivisection." He shows how utterly unfounded and blind are most of the press or antivivisection journal statements. The paper is one that the laity should have recourse to in order to straighten out their misdirected ideas on this important subject.

2. Patterson's paper on the economic loss due to venereal disease is extremely convincing and should form a base for further efforts towards its control.

6. Pierson finds marked similarity between distemper in dogs and poliomyelitis in children, and writes a very suggestive paper. The subject seems worthy of further careful investigation.

10. Breitstein believes that a Cesareanized woman who gives a history of an infection with a purulent vaginal discharge in the puerperium is a good candidate for rupture of the uterus in one of her subsequent pregnancies. Rupture of a Cesarean scar generally takes place in a scar resulting from improper wound healing because of infection. [E. H. R.]

THE LANCET.

FEBRUARY 7, 1914.

1. *WHITE, W. H. *Glycosuria.*
2. BLAND-SUTTON, J. *On the Treatment of Fractures of the External Malleolus.*
3. *JONES, H. L. *Diathermy, or the Electric Warming of the Tissues of the Body.*
4. ROLLESTON, H. D. *Vaccines from the Standpoint of the Physician.*
5. BASHFORD, E. F. *Fresh Alarms on the Increase of Cancer.*
6. HARMAN, N. B. *An Operation to Improve the Effect of an Artificial Eye.*
7. WHYTE, G. D. *Note on the Fragility of the Red Cells in Conditions Associated with Jaundice.*

1. In this clinical lecture White first considers those diseases which may be accompanied by glycosuria, such as exophthalmic goitre, diseases of the pituitary body, of the adrenals, pancreas, parthyroids, organs of generation, of the nervous system and liver. He then takes up the causation of hyperglycemia and acidosis. Under treatment he considers mild and severe cases as to the use of drugs, diet, etc. The article is full of practical points of value.

3. Jones explains the technic of diathermy, which he calls "the electric warming of the tissues of the body," theorizes as to the method of activity and describes its use and value in such conditions as arterial hypertension, joint affections, sciatica and neuralgia. [J. B. H.]

FEBRUARY 14, 1914.

1. *GRAVES, E. W. H. *Hunterian Lecture on the Experimental Principles of the Operative Treatment of Fractures and Their Clinical Application.*
2. *LUFF, A. D. *Some Common Errors in the Diagnosis and Treatment of Diseases of the Joints.*
3. SYMES-THOMPSON, H. E. *Mitral Stenosis, Cardiac Thrombosis, Aortic Embolism and Gangrene of Both Legs.*
4. RUSS, C. *A New Method of Treating Chronic Cholecystitis and Other Bacterial Infections.*
5. PERCIVAL, A. S. *Errors of Refraction in School Children.*
6. GOMPERTZ, R. *A Case of "Spastic" Constipation.*
7. MACDONALD, W. *Extra-articular Ankylosis of the Inferior Maxilla Due to Foreign Bodies in the Scalp for Ten Years.*
8. GAUNTLETT, E. G. *A Case of Intussusception Treated by Enterectomy.*
9. MORT, S. *Multiple Mesenteric Lipomata Causing Obstruction.*

1. In this first Hunterian lecture, Graves describes certain experimental work in animals on insecure and incomplete as well as efficient fixation of fractures by mechanical means and the problems of sepsis, delayed union, etc., he has met with. He discusses the use of wire, plates, etc.

2. This article is largely based on the discussion of the differential diagnosis of various joint disorders. As such it is of value although presenting nothing new. [J. B. H.]

BRITISH MEDICAL JOURNAL.

FEBRUARY 7, 1914.

1. *PRICE, J. D., AND ROGERS, L. *The Uniform Success of Segregation Measures in Eradicating Kala-azar from Arsam Tea Gardens; Its Bearing on the Probable Mode of Infection.*
2. *DUKE, H. L. *Wild Game as a Reservoir for Human Trypanosomes. An Analysis of the Available Evidence from the Northern Shores of Lake Victoria Nyanza.*

3. *Prentice, G. *Sleeping Sickness, Tsetse, and Big Game.*
4. *Bahr, P. H. *A Study of Epidemic Dysentery in the Fiji Islands, with Special Reference to Its Epidemiology and Treatment.*
5. *Archibald, R. G. *Intestinal Schistosomiasis in the Sudan, with Notes on the Treatment of Two Cases by Means of Autogenous Vaccines of Coli-like Organisms.*
6. *Arnold, W. J. J. *The Etiology of Beri-beri.*
7. *Nightingale, P. A. *Zeism or Pellagra.*
8. Wheeler, W. I. deC. *Anastomosis of the Vas Deferens.*
9. Cheatle, G. L. *The Spread of Cancer in the Lower Part of the Large Intestine.*

1-7. These articles deal exclusively with various phases of tropical medicine with special reference to the prevention of the spread of such diseases as kala-azar, sleeping sickness, etc., how the diseases are carried from animals and insects to humans, etc. They are of value to all interested in this branch of medicine. [J. B. H.]

February 14, 1914.

1. *Ballantyne, J. W. *The Nature of Pregnancy and Its Practical Bearings.*
2. *Routh, A. *Ante-natal Hygiene, Its Influence upon Infantile Mortality.*
3. Penfold, W. J. *A Method of Producing Rapid and Fatal Intoxication with Bacterial Products.*
4. Mamourian, M. *The Radical Cure of Procidentia Uteri in Elderly Women.*

1. In an interesting article, but one which hardly lends itself to review, Ballantyne discusses pregnancy from various points of view. He speaks of the three theories in regard to it: First, that the embryo is a parasite living on the mother and making certain definite demands of the maternal organism; second, the pathological concept that pregnancy is a nine-months' disease from which the mother is suffering; and third, the view of those who regard pregnancy as a harmonious symbiosis, that the child is a part of the mother and that there is a certain amount of give and take on each side. He discusses the maternal response to pregnancy; that pregnancy is physiology at high pressure. He considers pregnancy and life insurance, the biological test for pregnancy, the etiology of the various maladies of pregnancy, its place in the medical curriculum, pre-maternity wards and ante-natal pathology. He briefly takes up pregnancy and its relation to legislation, eugenic feminism and politics.

2. Routh discusses the causes of ante-natal disease and death. Among the paternal causes he mentions syphilis and tuberculosis; among the maternal causes he includes: (*a*) pathological, such as malnutrition, acute and chronic diseases, tropical diseases and toxemias, (*b*) mechanical causes, and (*c*) miscellaneous causes, such as hemorrhage, etc. Among the fetal causes he includes: (*a*) developmental, (*b*) pathological, (*c*) mechanical. To meet and relieve these causes he discusses remedies under three heads: (1) philanthropic, (2) legislative, and (3) medical. He dwells at length on these headings. The article is of great interest and value. [J. B. H.]

Münchener Medizinische Wochenschrift.

No. 5. February 3, 1914.

1. *Döderlein, A., and V. Seuffert, E. *The Mesothorium Treatment of Cancer.*
2. Henkel, M. *The Treatment of Cancer of the Uterus by Rays.*
3. *Schottmüller. *Jaundice in Pregnancy and Extra-uterine Pregnancy.*
4. Abderhalden, E. *The Dialysis Method in Clinical and Biological Problems.*
5. Plaut, F. *Absorption in Abderhalden's Dialysis Method.*
6. Preti, L. *Precipitation of Blood Serum by Lipoids from the Tubercle Bacillus.*
7. Mayer, M. *The Emetin Treatment of Dysentery.*
8. *Mayer. *Pathogenic and Non-pathogenic Organisms of the Intestinal Tract.*
9. Philip, C. *How Many Syphilitics are Sufficiently Treated?*
10. Spoerl. *Inguinal Pain in Young Men.*
11. Hirschfeld, L., and Klinger, R. *Endemic Goitre.*
12. Weber, F. *Tamponade in Obstetrics and Gynecology. (Conclusion.)*
13. Schröder, H. *Second Sight.*
14. Ernst, P. *Edwin Klebs.*

1. To be reviewed in the next number.

3. Schottmüller recognizes that jaundice is a not infrequent complication of pregnancy. It may be of catarrhal nature, or due to pressure on the bile passages by the enlarging uterus or may be infectious or hemolytic. In extra-uterine pregnancy with bleeding into the peritoneal cavity, there occurs another kind of jaundice which is not hepatogenic. This is due to the absorption of blood elements from the peritoneum. It is recognized by spectroscopic examination of the blood, which shows the presence of hematin. Schottmüller therefore believes that the presence of hematin in blood is a valuable clinical sign of extra-uterine pregnancy and that jaundice from this cause is an important clinical symptom.

8. Mayer has cultured the stools from 5719 soldiers. In only three cases were pathogenic bacteria found. He concludes that healthy individuals in healthy communities are rarely the carriers of infection. To prevent diseases acquired through the intestinal canal, he advises the avoidance of foods which may contain germs, and insists on clean streets, drinking water, clean houses and clean hands as the best kinds of general prophylactic measures. [R. F.]

No. 6. February 10, 1914.

1. Curschmann, H. *"Bronchotetany" of Adults and Its Treatment with Calcium.*
2. Sehrt, E. *The Thyroid Treatment of Hemorrhagic Metropathies.*
3. Tiuneck, C. *Pulsation in the Clavicular Arteries as a Sign of Sclerosis of the Thoracic Aorta.*
4. Wermel, S. *Changes in Blood or Serum after X-ray Exposure.*
5. Veragruth, O., and Seyderhelm, R. *The Effect of a New Procedure on an Abnormal Leucocyte Picture. (Third communication.)*
6. *Schneider, W. *The Blood in Whooping Cough.*
7. Jaenisch, H. *The Recognition of Anthrax.*
8. Gilbert, W. *Intra-ocular Tuberculosis.*
9. Fuchs, A., and Fremd, A. *Proteolytic Protective Ferments in the Serum of Psychiatrical Patients.*
10. Richter, G. *Movements of the Chest and Intercostal Spaces in Diseases of the Pleura.*
11. *Döderlein, A., and V. Seuffert, E. *The Mesothorium Treatment of Cancer. (Conclusion.)*

6. Schneider has made blood counts in 30 cases of whooping cough occurring in children of different ages. As a rule, up to the third week of the disease there is a leucocytosis of at least 27,000, becoming as high as 86,000 in complicated cases. During the first four weeks a relative lymphocytosis is found, varying between 58-63% of the white cells, while large mononuclear cells and transitional cells are only slightly increased. This blood picture is characteristic for whooping cough. The degree of leucocytosis, however, affords no prognostic information.

11. Döderlein and V. Seuffert have treated 180 cases of malignant disease with mesothorium. In this paper they give a careful analysis of their methods and results. They believe that mesothorium is a

good therapeutic agent in certain kinds of disease, and feel that further progress in its use can be made only by more confirmation by others. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 1. JANUARY 5, 1914.

1. GOLDSCHEIDER. *Kidney Lesions Resulting from Accidents.*
2. CHIARI. *Perforation of the Aorta by Foreign Bodies in the Esophagus.*
3. *v. HAUSEMANN. *A Working Hypothesis for the Investigation of Leukemia.*
4. *KLOSE. *Progress and Changes in the Surgical Treatment of Exophthalmic Goitre.*
5. DREYER. *Exploratory Trephining of the Skull in Several Places at One Operation.*
6. HEIMANN. *Mesothorium and the Roentgen-ray in Carcinoma of the Uterus.*
7. PELTESOHN. *An Unusual Case of Hip Dislocation in a Mongolian Idiot.*
8. STADLER. *The Treatment of Tetanus with Magnesium Sulphate.*
9. SIBER. *A Case of Primary Formation of Gallstones in the Liver.*
10. HELLER. *Acute Inflammation of the Paradidymis.*
11. URY. *The Use of Arsenic Triferrol in Diseases of the Stomach.*
12. VON OY. *Experiences with the Albuminate of Tricalcium-phosphate ("Tricalcol").*

3. The author advances the theory that leukemia may be a secondary or tertiary manifestation of some antecedent disease, just as there are secondary and tertiary lesions of syphilis. He has no data or proofs, but merely suggests that all cases of leukemia be subjected to an exhaustive questioning on the past history, to see if any one pathological process appears consistently in these histories. He thinks that possibly valuable light may be thrown on the subject in this way.

4. Klose in this article takes up the importance which the thymus has come to assume in Basedow's disease, and the definitely recognized deaths which have occurred after operation as a result of either pressure or intoxication from a pathological thymus. He classes all cases of Basedow's disease into: (1) those showing primary involvement of the thyroid with slight or no involvement of the thymus, (2) those in which the two glands are similarly diseased, and (3) the rare cases where the thymus alone is accountable for the symptoms. Correct diagnosis in the last two groups is difficult even with the best hospital facilities—indeed it is often impossible. During the last two years at the Frankfort clinic they have removed the thymus wholly or in part in every case in which it was suspected of being involved in the process, with startling results. Up to 1911 there were 130 operations with 8 "thymus deaths"—in 1912 and 1913 there were 200 operations with no deaths. The removal of the thymus was in addition to the thyroidectomy. The operation was always done under local anesthesia if possible, and the thymus was removed by enucleation within its capsule. [R. H. M.]

No. 2. JANUARY 12, 1914.

1. COENER. *Traumatic Cortical Epilepsy from a Bullet Wound. Cure by Fascia Transplantation.*
2. NEARX. *Air-ship Catastrophies and Injuries.*
3. *WECKOWSKI. *The Radium Treatment of Malignant Tumors.*
4. SIMON. *The Treatment of Inoperable Tumors.*
5. *KUZNITZKY. *Mesothorium in Carcinoma of the Skin and Other Organs.*
6. CENMANN. *The Rôle of Contact Infection in the Spread of Cholera in Servia in 1913.*
7. CEDERBERG. *On the Theory of Scarlet Fever.*
8. WOLF AND GUTMANN. *The Influence of Diet on the Sugar Content of the Blood in Diabetics.*
9. RENDA. *A Case of Feminine External Hermaphroditism.*
10. BRUHNS. *On the Diagnostic Value of the Gonococcus Vaccine.*
11. RADOS. *Experimental Results in the Causation of Choked Disc.*
12. BUCKY. *The Technic of the Application of Diathermic Treatment.*
13. GÖRGES. *Observations on Soluble Aspirin (Aspirin-Löslich).*

3. Werkowski has studied this subject exhaustively; he reports several cases, and concludes: (1) that radium and mesothorium have a marked destructive influence on carcinomatous tissue, different from any other substance yet discovered; (2) that growths which are resistant to the Roentgen ray are often influenced by radium; (3) that the most important factors for success are the amount of the radio-active substance used, the filtration, and the proper regulation of the distance between the radium and the carcinoma.

5. The author reports 74 cases of carcinoma of the skin treated with mesothorium, with the following results:—

Thirty-three cases were clinically cured, showing, at the time of the report, clean scars at the site of the disease, with no evidence of malignant infiltration.

Three cases which had recurrences after treatment were subjected again to the mesothorium and were clinically cured.

Four cases were refractory and showed no improvement.

Twenty cases were still undergoing treatment and no definite report could be given.

Fourteen cases were lost sight of, and were not available for this report.

The results with deep-seated inoperable tumors were much less satisfactory. [R. H. M.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 103. PART 1.

1. HÄRTEL, F., AND KEPPLER, W. *Experiences with Kulenkampff's Brachial Plexus Anesthesia, Particularly as Regards the Appearances During and Afterwards.*
2. *WOSSIDLO, E. *Experimental Studies in the Use of Collargol in the Renal Pelvis.*
3. EDEN, R. *The Surgical Treatment of Pulmonary Tuberculosis, Especially That Obtained by Collapse.*
4. JANKOWSKI, J. *Operative Treatment of Peritonitis Due to Perforation of Gastric or Duodenal Ulcer.*
5. TAKANO, W. *Carcinoma Sarcomatodes of the Breast.*
6. CALLEY, F. *The Question of the Hereditary Nature of Inflammation of the Appendix.*
7. BERESUEGOWSKY, N. *Intravenous Hedonal Narcosis.*
8. MATTI, H. *Normal Method of Operating upon Goitre of the Base of the Tongue.*
9. MAGNUS, G. *Answer to the Article by Christen upon "The Mechanics of Nail Extension."*

2. Wossidlo made numerous experiments upon dogs for the sake of determining the amount of damage done to kidneys by the injection of collargol, as it is used in pyelography. He found that when collargol is injected into the normal, uninjured pelvis in amounts no greater than the capacity of the pelvis, none of the silver enters the kidney proper or the tissues about the pelvis. If the amount injected is in-

creased beyond the normal capacity of the pelvis, collargol escapes into the peripelvic tissues and spreads over the surface of the kidney beneath the capsule. If the lining of the pelvis is injured, as by the ureteral catheter, the collargol, if under pressure, escapes into the interstitial tissues beside the blood-vessels and between the tubules, and by way of these interstitial spaces may pass into the spaces of Bowman's capsule in the glomeruli. In hydronephrosis, the collargol passes into the collecting tubules much more than in the normal kidney. Infarcted kidneys take up the collargol when it is under pressure, but only in their healthy portions. The infarcted area remains free. From these experiments Wossidlo advises never distending the pelvis beyond its capacity; in hydronephrosis, put in only as much collargol as there is residual urine. If there is primary bleeding, as is often found with stone, tuberculosis or tumor, do not use collargol; if there is secondary bleeding due to injury from catheterization, be careful to underdistend rather than overdistend the pelvis. He concludes by saying that his experiments were not very satisfactory, but he hopes to present a more complete study in the near future. [G. C. S.]

ANNALES DE L'INSTITUT PASTEUR.

NOVEMBER 25, 1913.

1. *METCHNIKOFF, E. *Studies upon Intestinal Flora.*
2. LINA, AND LUZZANI, N. *Diagnosis of Rabies by Demonstration of the Specific Parasite.*
3. LEVADITI, C., AND MUTERMILCH, ST. *Antibodies and Animal Species.*
4. LEGER, M., AND BOUILLIEZ, M. *Experimental Study of the Plasmodium Enui of Halberstädter and Prowazek in a Macacus Cynomalgus.*
5. PETTIT, A. *Observations upon the Ichthyosporidium and upon the Malady Which It Provokes in the Trout.*
6. *BESREDKA, A., AND JUPILLE, F. *Egg Bouillon.*
7. BUJWID, O. *Employment of Virus Regenerated by Transmission in the Treatment of Rabies.*

1. In this article Metchinkoff reports the results of further experiments with the products of intestinal putrefaction. In former work his associates have claimed that indol and paracresol have produced sclerotic lesions in organs and vessels of animals. In this report he shows that the potassium sulphate of these bodies has a toxic action for animals and then he claims that in addition to producing sclerotic lesions these substances are toxic even after combination with body salts. He simply states that therefore another proof is added to the claim that bacterial action against the organisms which produce these substances is justifiable.

6. In a medium which Besredka and Jupille prepared during their studies on anaphylaxis they have had excellent results in growing practically all the organisms, which they have tried out. They have grown better than on the usual media employed for such purposes the pneumococcus, meningococcus, streptococcus, gonococcus, typhoid bacillus, paratyphoid, colon, melitensis, cholera vibrios, diphtheria bacillus, cholera in chicken bacillus, tetanus bacillus and bacillus prodigiosus. The organisms grow more rapidly and preserve their vitality longer. The medium is made as follows:

Egg white (diluted 1:10) .....4 parts
Egg yolk (diluted 1:10) .....1 part
Ordinary bouillon .....5 parts

[C. F., JR.]

DECEMBER 25, 1913.

1. JAVILLIER, M. *Investigations upon the Substitution for Zinc of Different Chemical Elements for the Culture of Aspergillus Niger.*
2. *LUZZANI, L. N. *Diagnosis of Rabies by the Demonstration of the Specific Parasite, Based upon Ten Years' Experience.*
3. WOLLMAN, E. *Investigations upon the Origin of Alexine and Its Presence in the Circulating Blood.*
4. RUBINSTEN, M. *Investigations upon the Antipeptic Power of Serum.*
5. MAZÉ. *Investigations upon Vegetable Physiology.*

2. In reviewing her work, and that of other investigators during the past ten years, Dr. Luzzani reports as follows in regard to her feelings concerning the value of making a diagnosis of rabies by demonstration of the specific parasite, namely the negri bodies:—

The demonstration of the specific parasite discovered by Dr. A. Negri furnishes the surest and quickest method for making a diagnosis of rabies, not only in the dog, but in all other animals susceptible to the disease. The hippocampus major is that part of the brain in which the parasites are most numerous. At this point the forms are more developed and appear earlier in the disease. However, if this part of the brain cannot be obtained, a diagnosis is possible from examination of the other parts of the central nervous system. The author favors the examination in the fresh state after breaking up the tissue. If this fails, the staining method of Mann upon Zenhu fixed material is the best. A positive finding of negri bodies settles the diagnosis, but if the histological study is negative, an experimental inoculation is advisable.

[C. F., JR.]

BULLETTINO DELLE SCIENZE MEDICHE.

MAY, 1913.

1. *LONGO, C. *The Action of Sodium Chloride on Normal and Pathologic Kidneys.* (*Conclusion.*)

1. In this exhaustive continued article, Longo reports clinical observations on two cases of hemorrhagic, one of chronic interstitial, and one of chronic parenchymatous nephritis, and laboratory results from four series of animal experiments with uranium nephritis, from which he reaches the following conclusions relative to the importance of sodium chloride in the dietetic regimen of nephritics.

(*a*) The moderate and protracted use of sodium chloride has an irritating action on normal kidneys.

(*b*) This action is greater in nephritic kidneys.

(*c*) A systematic, properly watched, and regularly applied dechloridized regimen for nephritics is the most rational and presents no inconveniences or special contra-indications.

(*d*) The ordinary regimen, containing the ordinary quantity of supplementary salt cannot be tolerated by any nephritic, acute or chronic.

(*e*) In chronic nephritides with chloremic syndromes the sodium chloride exchange is notably altered.

(*f*) There is a parallelism between retention of chlorides and appearance of edema in nephritics.

(*g*) The milk regimen cannot be given to all nephritics, with impunity.

(*h*) Demineralization of food in the uranium nephritides has notable advantages.

(*i*) Clinically and experimentally, the subtraction of chlorides from the food, even if prolonged, does not cause in nephritics any disturbance of the nitrogen exchange.

(*j*) Only on the guide of the balance of chlorides, respecting the special eliminating function of the kidneys for these salts, can be fixed the opportune grade of the hypochloridized regimen.

[R. M. G.]

Miscellany.

NOTICES

THE CUTTER LECTURES ON PREVENTIVE MEDICINE AND HYGIENE. I. By Charles V. Chapin, M.D., Superintendent of Health, Providence, R. I., on "Municipal Sanitation."

Friday, March 20, "Science and Sanitation."

Friday, March 27, "Efficiency of Public Health Measures."

Thursday, April 2, "Organization of the Health Department."

Thursday, April 9, "Research and Publicity."

Thursday, April 16, "Nuisance Problems."

Thursday, April 30, "Contagious Disease Problems."

II. By Cressy L. Wilbur, M.D., Chief Statistician, Bureau of the Census, Department of Commerce on "Vital Statistics in Massachusetts and the United States," Wednesday, March 25, and Thursday, March 26.

Harvard Medical School, Amphitheatre Building A, at 5 p. m.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine, and that they should be delivered in Boston, and be free to the medical profession and the press.

The members of all classes in the Medical School, the medical profession, the press, and others interested are cordially invited to attend.

MASSACHUSETTS GENERAL HOSPITAL.—A surgical meeting open to the medical profession will be held at 8.15 p. m., on March 27, in the lower amphitheatre of the Out-patient Department. Entrance on either Blossom or Fruit Streets.

Dr. W. J. Mixter will present a "Report on Cranial Surgery at the Hospital since 1901."

Dr. E. P. Richardson will present a "Report on Operation for Hemorrhoids at the Hospital since 1901."

Dr. T. W. Harmer will present a paper on "Mixed Toxins (Coley) in Certain Cases of Sarcoma."

UNITED STATES CIVIL-SERVICE EXAMINATION.

MEDICAL INTERNE,

GOVERNMENT HOSPITAL FOR THE INSANE.

April 8 1914.

The United States Civil Service Commission announces that senior students of reputable medical colleges will be admitted to the open competitive examination for medical interne in the Government Hospital for the Insane, to be held on April 8, 1914, upon filing applications showing them to be otherwise eligible; but in the event they attain an eligible average in the examination their names will not be entered upon the eligible register until they have furnished proof of actual graduation from such colleges.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, March 23, 1914, at 8.15 p. m.

Addresses:

"Horse Asthma in its Relation to the Administration of Diphtheria Antitoxin," Dr. Joseph L. Goodale.

"Remarks on the Work and Theories of Dr. S. Weir Mitchell," Dr. James J. Putnam.

After the addresses there will be an informal discussion of the activities and future of the Society, in order to obtain an expression of opinion as to its policy. A full attendance of members is therefore earnestly desired.

E. W. TAYLOR, M.D., *President.*
ROBERT M. GREEN, M.D., *Secretary.*

AMERICAN SOCIETY FOR THE CONTROL OF CANCER.—The American Society for the Control of Cancer has made arrangements for a special meeting on cancer to the held at the New York Academy of Medicine, 17 West 43d Street, on Friday evening, April 10, 1914, at 8.30 p. m. This date has been selected in order that physicians and surgeons attending the Congress of the American Surgical Association may conveniently be present. The public is also invited.

Dr. William J. Mayo, of Rochester, Minnesota, President of the American Surgical Association and Frederick L. Hoffman, LL.D., statistician of the Prudential Insurance Company will discuss the problem of cancer and its control. Dr. Francis Carter Wood, Director of the George Crocker Research Laboratory will describe the investigation of cancer which has been undertaken there under the auspices of Columbia University. Dr. J. Collins Warren of Boston, Professor Emeritus of Harvard University, and President of the Harvard Cancer Commission, will give an account of the estblishment of that commission and the research work which it is directing at the Collis P. Huntington Memorial Hospital, and the Harvard Medical School.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, March 24, 1914, in the Out-patient amphitheatre of the Massasetts General Hospital, at 8.15 o'clock.

The meeting will be conducted by the Staff of the Massachusetts General Hospital.

Papers will be presented as follows:

Dr. Otto Folin and Dr. W. Denis: "Some New Chemical Methods for the Clinical Examination of Urine." (15 minutes.)

Dr. J. H. Means: "Study of Blood Acidity by the Method of Barcroft." (15 minutes.)

Dr. J. H. Pratt: "State of the Vaso-motor Mechanism in Diphtheria Intoxication." (10 minutes.)

Dr. L. H. Newburgh: "State of the Vaso-motor Mechanism in Pneumonia." (15 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer,*
Harvard Medical School.

RECENT DEATHS.

DR. EMILY H. SAWYER, who died recently in West Somerville, Mass., was born at Girard, Pa. She studied at the Boston College of Physicians and Surgeons, and for thirty years had practised her profession in Somerville. She was a widow.

DR. FRANCIS M. BURKE, of Brooklyn, N. Y., a graduate of the medical department of New York University in 1890, died on March 3, at the age of 53.

DR. HUBERT NICHOLS, of Brooklyn, N. Y., a graduate of Bellevue Hospital Medical College in 1891, died on March 9, at the age of 49.

DR. WILLIAM C. MONROE, who died on March 11, at Woonsocket, R. I., was born in 1849. He received the degree of M.D. in 1876 from Bellevue Medical College. He was chief of staff and chairman of the medical board of the Woonsocket Hospital, a member of the Rhode Island Medical Society and first president of the Woonsocket District Medical Association.

DR. JOHN LAING LEAL, who died on March 14 in Paterson, N. J., was born in Andes, N.Y., in 1858. He received the degree of A.B. in 1880 from Princeton, and in 1884 that of M.D. from the College of Physicians and Surgeons of New York. In 1888 he settled in the practise of his profession at Paterson, where he became an expert on sanitation, and was for many years president of the local board of health. He was consulting surgeon for the Paterson General Hospital and examiner in the School of Hygiene of Rutgers College, and president of the New Jersey State Sanitary Association.

Original Articles.

THE TREATMENT OF SYPHILITIC DISEASES OF THE CENTRAL NERVOUS SYSTEM BY INTRAVENOUS INJECTIONS OF SALVARSAN.*

BY LESLEY H. SPOONER, M.D., BOSTON.

[From the Department of Neurology of the Massachusetts General Hospital.]

This work, started in August, 1911, has been conducted exclusively in the ambulatory neurological clinic of the Massachusetts Genral Hospital. It has been impossible to utilize the wards owing to the limited accommodation of this department, except for the recovery from lumbar punctures, which were performed as a control to treatment. This rendered the investigation more difficult; but the results fully justify this means of treatment and may show others, situated in the same position, that ideal hospital facilities are not absolutely indispensible. An added objection to the "outpatient treatment" lies in the personnel of the clinic, which is composed to a large degree of people of more or less shiftless character. Because of this fact, a large percentage of our patients have disappeared. The fact that it has been impossible to trace such individuals is not only a waste of effort, but injures the value of such statistics by limiting the number of cases.

Appreciation is due to Dr. E. W. Taylor, Chief of Service of the Neurological Department, for stimulating advice and encouragement and to Drs. Henry C. Baldwin and Walter E. Paul, Neurologists of the Massachusetts General Hospital for valuable help in conducting this investigation. The complement fixation reactions, without which the work would have been of little value, have been performed by the Pathological Department under the guidance of Dr. James H. Wright, Director of the Pathological Laboratory.

This paper is in no wise a neurological treatise, but consists of a review of the definite results of a specific form of treatment upon diseases of the nervous system, the syphilitic character of which has been established in the light of our present knowledge. Erb[1] in 1881 suggested the connection existing in a vast majority of cases between tabes dorsalis and syphilis. But it was not until the discovery of the Spirochete pallida by Schaudinn and Hoffmann[2] in 1905 and that of the specific serum reaction by Wassermann[3] in 1906 that the definite connection between these diseases became an established fact.

* Read before the Medical Section of the Suffolk District Medical Society, Dec. 17, 1913.

It is not within the scope of this paper to discuss the varied forms of treatment for syphilitic diseases of the nervous system. The consideration is limited to the effect of salvarsan.

The results of treatment have been most varied. Leredde,[4] Ljass,[5] Collins and Armour,[6] Wechselmann,[7] and others have reported most favorable results. But as Jadassohn[8] points out, optimistic findings must be reviewed with great scepticism for two reasons. In the first place natural remissions are not infrequent in such diseases, especially in general paresis. Secondly, the enthusiasm resulting from the use of a new and much lauded drug is bound to have a beneficial result when employed in a chronic disease of long standing. Moreover, it is very common to see improvement in such cases from the use of any form of therapy which is attempted for the first time.

The benefits which have been witnessed in this group of cases is, however, of long standing and is maintained during a prolonged period during which the patient has received no treatment. As a further control, the serum and spinal fluid have been examined before and after treatment and, in as many cases as possible, at a period of at least six months after the last injection. These facts will be enumerated in detail in their proper order.

TABLE I.

CASES UNDER OBSERVATION IN THE NEUROLOGICAL CLINIC OF THE MASSACHUSETTS GENERAL HOSPITAL, AUGUST, 1911, TO DECEMBER, 1913.

Group.	Cases.	Treatments.	Lumbar Punctures.	Serum Tests.
Class A	24	107	42	63
Class B	6	27	4	14
"Spinous Cases" before spinous treatment	7	25	11	8
Lost cases	14	36	11	16
One injection only (lost)	9	9	6	9
Non-syphilitic	4	15	3	6
Total	64	219	87	116

The table shows the work performed in the clinic during the year and a half that new cases were received for this work. The lumbar punctures were performed to a large extent by Dr. James B. Ayer. In every instance he has enumerated the cell-content of the fluid and in some doubtful cases has carried out the Proteid Reaction. The technique of the "Wassermann reactions" has been uniform. The sheep corpuscle-rabbit-haemolytic system with a beef heart antigen has been employed.

The statistics are drawn from Class A, which consists of 24 patients who, having been followed for from 12 to 28 months, have reported within the last two weeks; Class B, consisting

of 6 patients, observed from the start, who have reported not later than June 1st, 1912, and lastly, a group of private patients as follows:

TABLE II.

PRIVATE PATIENTS.

	Cases.	Treatments.
Followed	19	62
Lost	8	9
Total	27	71

The entire group shows an aggregate of 91 patients, who have received 290 treatments. Attention is limited, however, to the three above mentioned groups with a total of 49 patients, with especial attention to Class A which has been controlled with much greater care and has been followed for a longer period than the others.

ETIOLOGY.

The syphilitic etiology has been demonstrated in 28 of the 30 cases of classes A and B, by means of history, complement fixation reactions in blood or spinal fluid, and by proteid reaction or cell-count in the latter. In one of the remaining an error in technique prevented an absolute conclusion, although the results throw much more than a suspicion on syphilis as a causal factor. The last case alone was absolutely unproved. For the sake of simplicity, the cases are divided into the following three classes: Tabes, General Paresis and Syphilis of the Central Nervous System.

TECHNIQUE.

Owing to the fact that our patients were forced to return to their homes following their injections, it was thought wise to administer small doses of salvarsan. With only rare exception 0.3g. salvarsan, in neutral solution, in 125 cc. of freshly distilled salt solution was introduced through the Schreiber needle, by means of rubber tubing attached to a 25 cc. Burroughs and Wellcome glass syringe, into the median vein. The ordinary means of asepsis were preserved. Care was taken not to introduce the fluid too rapidly and not to allow any of the drug to escape into the subcutaneous tissues. The use of such a small dose is considered inadvisable by Swift and Ellis,[9] but seems perfectly justified under the existing conditions.

CLINICAL RESULTS.

The accompanying table illustrates the clinical results in the simplest terms possible.

TABLE III.

Tabes Dorsalis:

	Class A	Class B.	Class C.	Total.
Improved	12	2	8	22
Moderately improved	1	0	0	1
Slightly improved	1	1	2	4
Not improved	3	0	2	5
Total cases	17	3	13*	32

* One case at present under treatment.

General Paresis:

	Class A	Class C.	Total.
Improved	1?	1	2
Not improved	2?	1	3
	3	2	5

Syphilis of the Central Nervous System:

	Class A	Class B.	Class C.	Total.
Improved	6	3	5	14
Slightly improved	1	0	0	1
Not improved	0	0	0	0
Total	7	3	5	15

Under the heading of tabes are classified three cases in whom there is a question of the existence of general paresis. Of these three, one alone has shown improvement. The other two, V and XIV, are suffering from disturbed mental states which have shown no change under treatment. The latter represent two of the three unimproved tabetic cases in Class A. The remaining individual (XI) is one with a long standing degenerative process in whom no good results from treatment could be demonstrated. The two unimproved cases in Class C (Nos. 384 and 558) fall into the same category as that just mentioned. The final results in tabes in this group show improvement in 27 cases or 84% and no improvement in 5 or 16%. Of the five unimproved cases of tabes, four have remained stationary and one has advanced. These figures include the two cases of questioned general paresis above mentioned. In no instance was any change in mental state noted in the latter disease. In one (VI), where that diagnosis was considered as possible, there has been a marked amelioration of distressing tabetic symptoms and in another (No. 445) there was decided improvement in strength on the side which had suffered paralysis. On the whole, the results from this small number of cases of general paresis are anything but encouraging. The reverse is true in cases of syphilis of the central nervous system. There, one hundred per cent. of improvement was shown in this group; and in only one instance (XVIII) could the change be called slight. The latter, a spastic paraplegic, complained simply of difficulty in locomotion. That a relief from this could not be considerable is not very surprising.

In addition to the failures in these tables and reviews, six cases have failed to show as much improvement as desired. Of these one had received two intra-venous injections, one three, three five, and one six. Two of these showed

moderate, but insufficient improvement; four showed not much of any change. All six were placed upon serum treatment. The results of this work are reported by Dr. Ayer.

The improvement in symptoms is a matter of considerable interest.

TABLE IV.

	Tabes.	Syphilis of C. N. S.	Total.
General Health and Strength:			
Marked improvement	17	10	27
Slight improvement	4	1	5
	21	11	32
Lancinating Pains:			
Improved	17		17
Apparently dispelled	8		8
	25		25
Ataxia improved (apparently from added strength)	8		8
Eyesight improved (diplopia, etc.)	4	4	8
Headache relieved	3	5	8
Vertigo relieved	3	2	5
Paralysis relieved	0	9	9
Gastric crises relieved	2		2
Urinary Control:			
Improved	1	0	1
Apparently recovered	..0	1	1
	1	1	2
Anesthesiae improved		4	4

It will be seen from the accompanying table that improvement in general condition and strength and gain in weight is nearly a constant result in all improved cases. The relief of lancination pains is also a most common and striking result of a thorough course of treatment. In many instances, the entire disappearance of such symptoms has been noted—in all eight in number. The relief of ataxia and improvement in gait is no doubt in most instances due to increased physical strength. Headache in syphilis of the central nervous system is almost always dispelled by the use of salvarsan. It might not be out of place to give a very brief review of a few striking examples of the relief of symptoms.

CASE 1. Helpless woman, suffering from syphilitic ataxie paraplegia of five years' duration. Urinary incontinence and lancinating pains for the last six months. Following treatment she has improved steadily. She is now doing all her own housework and never uses the cane when in-doors. She has gained 28 pounds and has no pain and no urinary incontinence. Her improvement has lasted for over a year.

CASE 3. Tabes, of five years' duration. Patient had severe lancinating pains and described himself as a cripple. Now he has no pains and "gets about without his cane." His improvement has been maintained for over six months.

CASE 8. Tabes, of nine years' duration. Patient suffered from lancinating pains, gastric crises and urinary incontinence. Following treatment, all of these symptoms disappeared and have not returned during the last year. For the last eight months she has worked (dressmaking) for eight to nine hours daily.

CASE 16. Syphilis of the central nervous system (basal). Patient had suffered for a year from diplopia, headache and vertigo, nausea and ataxia. Two months following the last injection, *i.e.* March, 1912, she was perfectly well. There has been no return of symptoms. She is now working five hours daily.

CASE 19. Syphilis of the central nervous system (spinal). Patient was suffering from an acute, advancing paraplegia. There was well-marked paralysis and pain in the right leg. The left was becoming weak. Urinary incontinence. Nine months after his last treatment the right leg is much stronger and free from pain. The left leg is absolutely normal. Bladder incontinence remains the same, however. Marked improvement in general condition.

CLASS C.

No. 213. Syphilis of the central nervous system. Right-sided hemiplegia with difficulty of speech. Headache. Duration of symptoms two weeks. Following treatment all the signs and symptoms began to clear. Now, two years later, he is "as well as ever."

No. 517. Syphilis of the central nervous system. Cerebral thrombosis. Complete left-sided paralysis. This had persisted for a week without much improvement. Following treatment he began to improve at once and now (six months after his seizure) he is as strong as before.

It is, of course, impossible to state what would have been the progress of cases 213 and 517 without treatment. The results are very suggestive, however.

No. 326. Syphilis of the central nervous system. Headache, diplopia and numbness of legs of a year's duration. Patient was such a sufferer that she was incapacitated. Following the last injection all symptoms disappeared and for the last ten months she has done all her own housework.

No. 511. Syphilis of the central nervous system. Headache and transient diplopia for three years. Hemianesthesia and hemiparesis for six months. His strength and sensation returned gradually during his course of treatment. Before his last injection he reported that he had just "chopped down a tree one foot in diameter." His improvement has been sustained for the last six months.

No. 334. Tabes, of one to two years' duration. Lancinating pains, gastric crises and bladder disturbances. Pains and gastric symptoms responded almost immediately to treatment. Now, seventeen months after his last treatment, he feels perfectly well. No return of old symptoms, no new symptoms developed.

This brief case review presents simply the most striking clinical results. Not all symptoms are relieved in every patient and in the five noted in Table III no improvement of any note could be found. The six cases placed on serum treatment should also be considered as unsuccessful. In spite of the extensive improvement in symptoms, not a single change in physical signs has been discovered, save in regard to

biological and cytological changes about which mention will be made at once.

BIOLOGICAL AND CYTOLOGICAL CHANGES.

The accompanying table, based upon Class A, shows the changes that have taken place in the complement fixation reactions upon blood and spinal fluid and in spinal lymphocytosis. In many intances, patients have refused to be submitted to lumbar puncture, after suffering enough reaction from their first to incapacitate them for work 24 to 48 hours.

Seventeen of the 24 cases of Class A show changes in the serum or spinal fluid fixation reactions or cells counts. Spinal fluids show changes in 10 or 42%; blood in 9 or 38%. Both are altered in two cases. This shows a high percentage of physical alteration due very evidently to the treatment and persisting in many cases for months after the last injection. The most striking conclusion from these figures is obtained from a comparison of these biological and cytological changes with the clinical results already referred to. See table VI.

TABLE V.

	Before Treatment.			After Treatment.			9 to 15 Months After.			
	Blood.	Sp. Fl.	Cells.	Blood.	Sp. Fl.	Cells.	Blood.	Sp. Fl.	Cells.	Improvement.
I	++++	++++	25	—	0	14	—	—	3	Sp. Fl. ++++ 25 to 0 — 14, later 3 cells
II	++++	++++	90	++++	—	—	++++	++	36	Sp. Fl. ++++ 90 to ++ 36 cells
VI	0	++?	110	—	++++	110	0	—	18	Sp. Fl. ++++ 110 to 18 cells
VIII	++++	—	—	+	0	1	++	—	0	Blood ++++ to ++
IX	++	—	—	±	—	—	±	—	—	Blood ++ to ±
X	0	0	310	—	0	5	0	—	—	Sp. Fl. 0 — 310 cells to 0 — 5 cells
XII	0?	++?	60	0	++++	35	0	0	29	Sp. Fl. ++++ 60 and 35 to 29 cells
XIII	0	0	120	—	0	15	—	—	—	Sp. Fl. 0 — 120 cells to 0 — 15 cells
XIV	++	—	—	0	—	—	±	—	—	Blood ++ to 0 and ±
V	++++	—	—	±	—	—	—	—	—	Blood ++++ to ±
XVI	±	0	30	—	0	6	0	—	—	Blood ± to 0; Sp. Fl. 0 — 30 cells to 0 — 6 cells
XVII	0	++++?	30	—	0	3	0	—	—	Sp. Fl. ++++? 30 cells to 0 — 3 cells
XIX	0	—	27	0	±	2	0	0	4	Sp. Fl. 27 cells to 0 — 4 cells
XX	++++	++	110	—	—	—	0	—	—	Blood ++++ to 0
XXI	++	—	—	++	0	1	0	—	—	Blood ++ to 0
XXII	++++	++++?	360	0	—	—	0	0	123	Blood ++++ to 0; Sp. Fl. ++++? 360 cells to 0 — 123 cells
XXIII	++++	+	7	0	—	—	—	—	—	Blood ++++ to 0

Abbreviations: ++++ = strongly positive. +++ = positive. ++ = moderately positive. + = weakly or slightly positive. ± = suggestive. 0 = negative. — = test not performed.

TABLE VI.

Case.	Blood Imp.	Sp. Fl. Imp.	Clinical Result.
I	O	+	Improvement
II	O	+	Improvement
III	O* (neg.)	—	Improvement
IV	O (neg.)	O	Moderately imp.
VI	O (neg.)	+	Improvement
VII	O (neg.)	—	Improvement
VIII	+	—	Improvement
IX	+	—	Slight imp.
X	O (neg.)	+	Improvement
XI	O	—	No improvement
XII	O (neg.)	+	Improvement
XIII	O (neg.)	+	Improvement
XIV	+	—	No improvement
XV	+	—	Improvement
XVI	+	+	Improvement
XVII	O (neg.)	+	Improvement
XVIII	O	O	Slight imp.
XIX	O (neg.)	+	Improvement
XX	+	—	Improvement
XXI	+	—	Improvement
XXII	+	+	Improvement
XXIII	+	—	Improvement
XXIV	O	—	Improvement

NOTE: O = No change (Improvement). + = Change (Improvement). — = No observation.

* Negative examinations before treatment. No. V thrown out through error in technic.

Six cases failed to show any biological or cytological improvement following treatment. It will be noted that cases II and VII had blood reactions only performed; and in both instances the primary results were negative. These might well be excluded from consideration. Of the remaining four which alone failed to show expected change, one presented only moderate improvement clinically, one slight change for the better and one no alteration in his condition. Hence in only one case which was clinically improved was there no change reported from laboratory examination. This patient (XXIV) showed no diminution in the intensity of his serum reaction. It was impossible to get consent for a second spinal puncture. In none did an improvement in reaction or cellular content of the spinal fluid occur without betterment of the clinical condition of the patient. In only one case (XIV) was there a change in serum reaction in a patient showing no physical improvement, hence, from this series, it appears that as an indication of clinical improvement the diminution in intensity of the serum reaction is of considerable value, but that that of the spinal fluid and especially that of lymphocytosis is in every instance a correct index.

DURATION OF IMPROVEMENT.

The accompanying table (No. VII) shows a detailed study of the improved cases of Class A in relation to the length of time that they have maintained their gains since receiving their last treatment.

TABLE VII.

TABES.

Months.	Cases.	
22	1	
20	2	
19	1	4 cases over 18 months
17	1	
13	1	2 cases from 12 to 18 months
11	2	
10	2	
9	1	5 cases from 9 to 12 months
4	2	
3	1	3 cases from 3 to 9 months
	14	

SYPHILIS OF THE CENTRAL NERVOUS SYSTEM.

Months.	Cases.
24	1
23	2
11	2
9	2
	7

The Table may convey an erroneous conclusion since in many instances patients have returned for further treatment without any relapse from their improved state. As a matter of fact, it is of great advantage for the patient to return at intervals even though in improved health to receive further treatment. If the somatic disease syphilis requires years of treatment for its eradication, it is rational to suppose that its elimination from such deep-seated structures as the cord, brain or meninges would require quite as long, if not a longer time.

All cases were received with care January 1, 1913. At that time one case was reported as improved (V), who now seems to show no change from his original condition. One case reported at that time as unimproved is now moderately benefited. These facts further emphasize the necessity of proper control through laboratory observations. In no other instance has there been a sufficient alteration in the patient's condition during the 11 months to warrant any change in classification.

TABLE VIII.

IMPROVEMENT IN TABES IN RELATION TO DURATION OF NERVOUS PROCESS.

Improved Cases.

Duration of Tabes.	Cases.
9 years	1
7 years	1
5 years	2
4 years	3
3 years	1
2 years	1
1 year	2
6 months	1
Total	12

Moderately Improved.

1 year	1 case

Slightly Improved.

1 year	1 case

Cases Showing no Improvement.

Duration of Tabes.	Cases.
9 years	1
5 years	2
Total	3

These figures show the unimproved cases to be of long duration. But on the other hand, many of the cases which showed the most striking benefit from salvarsan had been in progress five years or over. But one fact remains, that all the cases in this group, except those presenting paretic mental symptoms, which have shown slight or no improvement, have been those in whom advanced degenerative lesions existed before treatment. The cases of syphilis of the central nervous system, which have been benefited the most, have harbored the disease the longest. It is difficult to explain the reason for this peculiar fact.

A review of the tables fails to show any relation between the degree and speed of improvement and the date of initial syphilitic infection. Those who have harbored syphilis in the body for the longest periods seem to be as susceptible to improvement as those more freshly infected.

Persistence in treatment is essential for its success. Two injections are seldom of any lasting service. Although the greatest improvement is generally noted after the first or second administration, yet in the improved cases continuous progress is as a rule the result of repeated treatments. It seems wise to advise injections at one to two week intervals until six or eight are taken. Then it might be well to carry out series of two or three injections at six to eight week intervals, as Leredde advises.

Two of the unimproved cases were persistent in seeking relief, one receiving six and the other eight injections. Many showed improvement after only three or four doses, rarely one after only two. But the majority of those who adhered closely to the treatment have shown improvement. As is the case with syphilis elsewhere, treatment should not cease upon alleviation of symptoms. It has been impossible, however, to impress this fact forcibly enough upon the minds of most of this class. It is undoubtedly true that the results of this work would have been more satisfactory, had patients been willing to return for further treatment although for the present relieved.

TABLE XII. CLASS A.

CASE NUMBER	AGE.	DIAGNOSIS.	SYPHILITIC INFECTION.	DURATION OF SYMPTOMS.	CHIEF SIGNS AND SYMPTOMS.	WASSERMANN REACTION. BLOOD.	SPINAL FLUID.	CELL COUNT.
I	54	Ataxic Paraplegia Syphilitic	—	5 years	Spastic gait Urinary incontinence (6 months) Pain in legs (lancinating) Increased reflexes A.-R. pupil	9 viii 12 ++++	13 viii 12 ++++	13 viii 12 25
II	51	Tabes	+ 1887	4 years	Ataxia Lancinating pains Vertigo Bladder incontinence Difficulty in starting urine A.-R. pupil	16 xii 12 ++++	16 xii 12 ++++	16 xii 12 90
III	37	Tabes	+ ?	5 years	Blindness and diplopia Ataxia Paresthesia Lancinating pains Gastric crises Absent reflexes Hypotonia A.-R. pupil			
IV	46	Tabes	+ 1897	1 year	Ataxia Lancinating pains Paralysis of the larynx A.-R. pupil	24 viii 12 o	24 viii 12 o	24 viii 12 50
V	48	Tabes General paresis?	Denies	5 years	Ataxia Headache Mental changes Reflexes lost A.-R. pupil	28 ix 11 + ?	26 viii 11 ++++ ?	26 viii 11 "Normal"
VI	50	Tabes General paresis?	+ 1880	3-5 years	Ataxia Mental sypmtoms (viii 11) Lancinating pains Weakness	9 i 12 o	29 viii 11 ++ ?	29 viii 11 110
VII	37	Tabes	Denies	3-4 years	Ataxia Lancinating pains Gastric crises Lumbar pain	8 vii 12 o		
VIII	49	Tabes	—	9 years	Lancinating pains Gastric crises Urinary incontinence Poor eyesight A.-R. pupil	7 vii 12 ++++		
IX	37	Tabes	Denies	1 year	Lancinating pains Ataxia Urinary incontinence	19 xii 11 ++ 11 i 12 +		
X	37	Tabes	Denies	6 months	Slight ataxia Headache Gastric crises Lancinating pains Vertigo	25 i 12 o	25 i 12 o	25 i 12 310
XI	42	Tabes	+ 1887	5 years	Lancinating pains Ataxia Profound weakness Paresthesia (left side) A-R pupil	28 ix 11 ++ ?	?	22 viii 11 83
XII	49	Tabes	+ 1903	6-12 months	Ataxia Vertigo Girdle pain Lancinating pains	2 xi 11 o?	26 x 11 ++ ?	26 x 11 60
XIII	45	Tabes (Acute)	+ 1906	1 year	Ataxia Lancinating pains Gastric crises	10 i 13 o	10 i 13 o	10 i 13 120

CASES FOLLOWED TO DATE (DECEMBER, 1913).

TREATMENT.	WASSERMANN REACTION FOLLOWING TREATMENT. BLOOD.	SPINAL FLUID.	SUBSEQUENT CELL COUNT.	ILL EFFECTS OF TREATMENT.	RESULTS.
22 viii 12, 0.3 g. Salvarsan 12 ix 12, 0.3 g. Salvarsan	29 xi 13 +'+++	7 vii 13 o	7 vii 13 14 Proteid + 1 xii 13 3	Forced to expose vein in both instances	26 xi 13, walks much better, uses no cane about house. Doing all her house work. No pain. No bladder incontinence. Has gained 28 pounds. Improved general condition. Reflexes and pupils unchanged. 4 xii 13, Luetin test negative.
19 xii 12, 0.3 g. Salvarsan 9 i 13, 0.3 g. Sarvarsan 23 i 13, 0.3 g. Salvarsan 13 vi 13, 0.3 g. Salvarsan 26 vi 13, 0.3 g. Salvarsan 11 vii 13, 0.3 g. Salvarsan	13 vi 13 ++++ 26 xi 13 ++++	1 xii 13 ++	1 xii 13 36	None	26 xi 13, lancinating pains much less frequent, of shorter duration and less severe. Bladder incontinence less pronounced. No vertigo. Has gained 26 pounds. Improved general condition. Reflexes and pupils unchanged.
28 v 12, 0.3 g. Salvarsan 25 vi 12, 0.3 g. Salvarsan 9 vi 13, 0.3 g. Salvarsan 22 vi 13, 0.2 g. Salvarsan 17 vii 13, 0.3 g. Salvarsan 31 vii 13, 0.3 g. Salvarsan 14 viii 13, 0.3 g. Salvarsan 28 viii 13, 0.1 g. Salvarsan	9 vi 12 0 28 xi 13 o		22 i 13 60	Chill and general pains two days after first injection	28 v 13, pains and headache much relieved. General condition improved. 28 xi 13, formerly a cripple. Now gets about reasonably well without a cane. No lancinating pains. Good eyesight.
5 ix 12, 0.3 g. Salvarsan 3 x 12, 0.3 g. Salvarsan 22 i 13, 0.3 g. Salvarsan 23 i 13 serum into spinal canal	24 xi 13 ± 9 xi 11 o?		22 i 13 60	Marked reaction to spinal treatment	24 xi 13, diplopia and paralysis of larynx unchanged. Less pain. Gait better. Stronger generally. A.-R. pupil and reflexes unchanged.
28 ix 11, 0.3 g. Salvarsan 19 x 11, 0.3 g. Salvarsan 12 vi 12, 0.3 g. Salvarsan	12 iv 12 o 25 xi 13 o	8 ii 13 o 1 xii 13 o	8 ii 13 3 1 xii 13 10	None	25 xi 13 headache entirely relieved. No change in mental state. 4 xii 13, Luetin test negative.
9 i 12, 0.3 g. Salvarsan 15 ii 12, 0.3 g. Salvarsan 18 iv 12, 0.3 g. Salvarsan	25 xi 13 o	16 i 13 ++++ 13 xii 13 o?	16 i 13 110 25 xi 13 18	None	6 i 13, walking now without cane. Working short hours. 29 x 13, 60 to 70 per cent. better. 25 xi 13, complete recovery from pain. Working 7 to 8 hrs. daily. Marked general improvement. 4 xii 13, Luetin test negative.
17 x 12, 0.3 g. Salvarsan 21 xi 12, 0.3 g. Salvarsan 2 i 13, 0.3 g. Salvarsan	12 xii 12 o			None	3 xii 13, reported by letter. No pain. Gait fair. Improved general condition.
1 viii 12, 0.3 g. Salvarsan 29 viii 12, 0.3 g. Salvarsan 1 ix 12, 0.3 g. Salvarsan 7 xi 12, 0.3 g. Salvarsan 2 i 13, 0.3 g. Salvarsan	26 viii 13 + 24 xi 13 ++	5 ii 13 o 13 xii 13 o	5 ii 13 1 1 xii 13 o 13 xii 13 o	None	19 v 13 and 24 xi 13. No pain or urinary incontinence. No gastric crises. Eyesight better. Marked general improvement. For last 8 months has worked (dressmaking) 8 to 9 hrs. daily. Reflexes unchanged. 4 xii 13, Luetin test negative.
11 i 12, 0.3 g. Salvarsan 8 ii 12, 0.3 g. Salvarsan 7 iii 12, 0.3 g. Salvarsan	24 xi 13 ±			24 hrs. after second injection vomiting and severe lancinating pains	24 xi 13, pains not so severe or lasting. Rather stronger. Bladder symptoms unchanged. Reflexes unchanged.
25 i 12, 0.3 g. Salvarsan 29 ii 12, 0.3 g. Salvarsan 11 iv 12, 0.3 g. Salvarsan 2 v 12, 0.3 g. Salvarsan	28 xi 13 o	23 i 13 o	23 i 13 5	None	28 xi 13, no headache. Rare lancinating pain. No vertigo. General condition improved. Reflexes unchanged.
28 ix 11, 0.3 g. Salvarsan 9 x 11, 0.3 g. Salvarsan 4 i 12, 0.3 g. Salvarsan 8 ii 12, 0.3 g. Salvarsan 21 iii 12, 0.3 g. Salvarsan 18 vii 12, 0.3 g. Salvarsan	9 xi 11 ? 24 xi 13 ++			None	18 i 12, no change. 28 xii 12, no change. 24 xi 13 lancinating pains a little less severe, otherwise no change. General condition same or worse.
2 xi 11, 0.3 g. Salvarsan 15 xii 11, 0.3 g. Salvarsan 30 i 13, 0.3 g. Salvarsan 24 ii 13, 0.3 g. Salvarsan 26 vi 13, 0.3 g. Salvarsan 11 vii 13, 0.3 g. Salvarsan 22 vii 13, 0.3 g. Salvarsan 7 viii 13, 0.3 g. Salvarsan 21 viii 13, 0.3 g. Salvarsan 4 ix 13, 0.3 g. Salvarsan	14 vi 13 o 16 x 13 o 26 xi 13 o	21 i 13 ++++ 16 ix 13 o 1 xii 13 o	21 i 13 35 16 ix 13 29 1 xii 13 1	None	21 i 13, much less pain. Gait better. 28 v 13, general condition better. 1 xii 13, general condition much improved. Walking much better. No vertigo. Less girdle pain. No lancinating pain. 4 xii 13, Luetin test negative.
10 i 12, 0.3 g. Salvarsan 16 i 13, 0.3 g. Salvarsan 24 i 13, 0.3 g. Salvarsan 6 ii 13, 0.3 g. Salvarsan		11 ii 13 o	11 ii 13 15	None	28 v 13, pains and gait much better. General condition better. 1 xii 13, pains and gait continue improved. Gastric attacks persistent. (Reports by letter.)

TABLE XII. CLASS A.

CASE NUMBER	AGE.	DIAGNOSIS.	SYPHILITIC INFECTION.	DURATION OF SYMPTOMS.	CHIEF SIGNS AND SYMPTOMS.	WASSERMANN REACTION. BLOOD.	SPINAL FLUID.	CELL COUNT.
XIV	49	Tabes General Paresis?	+ 1885	9 years	Ataxia Irrational No mental control Lancinating pains A.-R. pupil	17 x 11 ++		
XV	32	Tabes	Denies	4 years	Ataxia Lancinating pains	1 viii 12 ++++		
XVI	35	Syphilis of central nervous system. (Basal)	+ 1911 Pharynx	1 year	Ataxia Diplopia Nausea Headache Vertigo	1 i 12 ±	1 i 12 o	1 i 12 30
XVII	50	Syphilis of central nervous system. (Thrombosis of post. inf. cerebellar artery)	+ 1881	2 years	Weakness Vertigo Hemianesthesia	2 xi 11 o	2 xi 11 ++++?	2 xi 11 40
XVIII	30	Syphilis of central nervous system. (Spinal)	+ 1908	1 year	Spastic paraplegia (legs) Urinary incontinence Deafness Increased reflexes	27 v 12 o	9 viii 12 o	9 viii 12 20
XIX	26	Spinal Syphilis. (Acute)	+ 1908	6 months	Ataxia Paralysis and pain in right leg Urinary incontinence	27 xi 12 o		27 xi 12 27
XX	27	Spinal syphilis	+ 1908	3 years	Pain in left arm	28 x 12 ++++	14 xi 12 ++	14 xi 12 110
XXI	43	Cerebral syphilis Optic atrophy Facial paralysis	Denies	4 years	Loss of sight (left) Failing vision (right) Facial paralysis (5 weeks)	26 vii 12 ++		
XXII	37	Tabes	?	3 years	Ataxia Lancinating pains Gastric crises	31 xi 11 ++++	16 xi 11 ++++?	16 xi 11 360
XXIII	52	Tabes	+ 1884	7 years	Lancinating pains Paresthesia Bladder incontinence	16 xi 11 ++++	16 xi 11 +	16 xi 11 7
XXIV	45	Tabes	+ 1891	2 years	Ptosis, right eye Failing eye sight Lancinating pains Abdominal pain Frequent micturition Gastric crises	26 x 11 ++++?	19 x 11 ++++?	19 x 11 50

CASES FOLLOWED TO DATE (DECEMBER, 1913).

TREATMENT.	WASSERMANN REACTION FOLLOWING TREATMENT. BLOOD.	SPINAL FLUID.	SUBSEQUENT CELL COUNT.	ILL EFFECTS OF TREATMENT.	RESULTS.
31 viii 11, 0.3 g. Salvarsan 18 ix 11, 0.3 g. Salvarsan 13 vi 13, 0.3 g. Salvarsan 26 vi 13, 0.3 g. Salvarsan 10 vii 13, 0.3 g. Salvarsan 24 vii 13, 0.3 g. Salvarsan 7 viii 13, 0.3 g. Salvarsan 21 viii 13, 0.3 g. Salarsan	10 vi 13 o 29 xi 13 ±			None	18 i 13 mental state unchanged. 29 xi 13, mental state same. Still has no control. Pains better. Little general improvement.
1 viii 12, 0.3 g. Salvarsan 21 xii 12, 0.3 g. Salvarsan 11 i 13, 0.3 g. Salvarsan 26 vi 13, 0.3 g. Salvarsan 24 vii 13, 0.3 g. Salvarsan 21 viii 13, 0.3 g. Salvarsan	10 vi 13 +			None	28 v 13, walking better. Moderate improvement in pain. General condition improved. 3 xii 13, reports by letter. No change from 28 v 13.
3 i 12, 0.3 g. Salvarsan 25 i 12, 0.3 g. Salvarsan	6 xii 13 o	23 i 13 o	23 i 13 6	Nausea all day after second injection	23 i 13, marked improvement in all symptoms. 4 vi 13, improvement continues. 6 xii 13, two months after last injection perfectly well. No return of old symptoms. Works five hours daily. No disturbance of cranial nerves.
2 xi 11, 0.3 g. Salvarsan 15 xii 11, 0.3 g. Salvarsan	12 xii 12 o 4 xii 13 o	16 i 13 o	16 i 13 3	None	16 i 13, much less vertigo and stiffness of legs. 4 xii 13, no vertigo Walking much better. Gait steady. More alert mentally. General condition improved. No disturbance of sensation.
29 viii 12, 0.3 g. Salvarsan 3 x 12, 03. g. Salvarsan 31 x 12, 0.3 g. Salvarsan 5 xii 12, 0.3 g. Salvarsan	4 xii 13 o	3 i 13 o 4 xii 13 o	3 i 13 7 4 xii 13 19	None	30 i 13, motor trouble continues. 4 xii 13, same trouble, but is a little stronger. General health now excellent. 4 xii 13, Luetin test negative.
5 xii 12, 0.3 g. Salvarsan 19 xii 12, 0.3 g. Salvarsan 10 i 13, 0.3 g. Salvarsan 23 i 13, 0.3 g. Salvarsan 30 i 13, 0.275 g. Salvarsan 13 iii 13, 0.3 g. Salvarsan	12 vi 13 o 28 xi 13 o	16 vi 13 ± 3 xii 13 o	16 iv 13 2 3 xii 13 4	None (Proteid slight)	30 i 13, legs stronger. More sensation. 10 iv 13, pains better. 28 xi 13, legs much stronger. Has worked the last four months. Urinary incontinence unchanged. Left leg, which was becoming involved, has remained strong.
14 xi 12, 0.3 g. Salvarsan 12 xii 12, 0.3 g. Salvarsan 1 i 13, 0.3 g. Salvarsan	28 xi 13 0			Increased pain in arm, nausea etc., following first injection; considerable after other two	12 xii 12, pains much better. 30 i 13, much better. 28 v 13, pain has returned (without treatment). 28 xi 13, somewhat better.
8 viii 12, 0.3 g. Salvarsan 5 ix 12, 0.3 g. Salvarsan 17 x 12, 0.3 g. Salvarsan 5 xii 12, 0.3 g. Salvarsan 26 xii 12, 0.3 g. Salvarsan 16 i 13, 0.3 g. Salvarsan 20 iii 13, 0.3 g. Salvarsan	23 ix 12 ± 8 xi 12 + + 3 iv 13 ± 26 xi 13 o	30 iv 13 o	30 iv 13 1	8 viii 12 extensive hematoma after injection, lasting 10 days	After first injection facial paralysis began to clear. 16 i 13, eye sight better. During xi 12 loss of orientation (3 wks.). 3 iv 13, mind clear. No vertigo. 26 xi 13, facial paralysis gone. Left eye, sight loss; right eye, sight good. (2 v 13, E. and E. Inf. report corr.) Has gained 23 pounds.
28 xii 11, 0.3 g. Salvarsan 25 i 12, 0.3 g. Salvarsan 13 v 12, 0.3 g. Salvarsan 19 xi 12, 0.3 g. Salvarsan	25 i 12 ± 13 v 12 o 19 xi 12 + 29 vi 13 o	7 x 13 o Proteid +	7 x 13 123	Vomiting and headache for 12 hrs. following one injection	27 v 13, lancinating pains rare. General condition much improved. 8 xii 13. Letter. Improvement has continued to date.
16 xi 11, 0.3 g. Salvarsan 21 xii 11, 0.3 g. Salvarsan 3 v 12, 0.3 g. Salvarsan	3 v 12 o			None	17 vi 13, bladder about the same. Marked improvement in pains and general condition. 12 xii 13. Letter. No pain. General health very good.
26 x 11, 0.3 g. Salvarsan 4 iv 12, 0.3 g. Salvarsan	23 i 13 + + + +			Venous thrombosis at end of administration. Considerable pain.	4 vi 13, pains; gait; sight and general condition improved. xii 13, no pains of any kind. General health improved. Letter.

CLASS B.

CASE NUMBER	AGE.	DIAGNOSIS.	SYPHILITIC INFECTION.	DURATION OF SYMPTOMS.	CHIEF SIGNS AND SYMPTOMS.	WASSERMANN REACTION. BLOOD.	SPINAL FLUID.	CELL COUNT.
XXV	32	Tabes	—	4 years	Ataxia Severe lancinating pains	14 v 12 o		
XXVI	33	Tabes	Denies	2-3 years	Ataxia Lancinating pains Paresthesia	28 xii 11 ±	24 i 12 +	24 i 12 50
XXVII	31	Tabes	—	2 years	Ataxia Lancinating pains and weakness of legs Gastric crises	2 xii 12 +		10 xii 12 410
XXVIII	51	Syphilis of central nervous system	+ 1882	6 months	Old hemiplegia Headache Vertigo	26 ii 12 o	26 ii 12 ++++	26 ii 12 33
XXIX	32	Syphilis of central nervous system	Denies	3 years	Spastic paraplegia Paresthesia of feet	19 xi 12 +	19 xi 12 ++	19 xi 12 170 Proteid ++
XXX	26	Cerebral tumor	Denies	10 months	Irritative phenomena of right side. Speech Headache Dimness of vision Old double iritis Right facial paralysis	19 v 11 +		

REACTIONS.

To the thirty members of Classes A and B, 134 intravenous injections of Salvarsan have been administered. Reactions, consisting of chills, nausea, vomiting and fever followed five injections. All reactions followed either the first or the second injection and lasted from 24 to 48 hours. In a few instances the reaction was delayed from 24 to 48 hours, as is not unusual in cases of this variety.

An extensive hematoma developed after one injection (XXI, which lasted for ten days. In two instances (XXIV and XXVII) a thrombosis followed one of the injections. Both attempts to introduce the needle directly in Case 1 failed and the vein was exposed. This is a fault to be avoided if possible, first because of the added complexity of the operation, secondly because the scar acts as tell-tale evidence, and, finally, because the vein exposed is necessarily unfit for subsequent use. This is a matter of considerable importance when frequent injections are contemplated. There were no other ill effects and no other difficulties in administration than those mentioned.

One man, who had been lost from observation, has been reported dead—cause unknown and not determinable.

HERXHEIMER REACTION.

The exaggeration of symptoms provoked by the administration of salvarsan is considered to be a modification of the so-called Herxheimer reaction. It is the opinion of Erlich and others that the parasiticidal action of the drug serves to liberate imprisoned spirillae or their toxines situated at the focus of infection. Whatever the cause, it is true that lancinating pains and gastric crises in tabes and headache in cerebral syphilis are very prone to be accentuated by the first treatments, when those symptoms are at all prominent. This reaction lasts for 24 to 48 hours or even as long as a week in some instances, but eventually passes away. Cases IX and XX suffered pronounced reaction of such a sort, the latter following all three injections, but being most pronounced after the first. The presence of such a modified Herxheimer reaction should be looked upon as a relatively hopeful sign, since in those cases the particular symptom which is so accentuated is often eventually relieved.

PROGNOSIS.

It is extremely difficult to foretell the result of this treatment. As has been shown, it is more than reasonable to hope for a consider-

CASES FOLLOWED TO JUNE, 1913. SUBSEQUENTLY UNTRACED.

TREATMENT.	WASSERMANN REACTION FOLLOWING TREATMENT. BLOOD.		ILL EFFECTS OF TREATMENT.	RESULTS.
14 v 12, 0.3 g. Salvarsan 13 vi 12, 0.3 g. Salvarsan 29 viii 12, 0.3 g. Salvarsan	4 vi 12 + 16 vii 12 o		None	19 ix 12, pain in left leg better. Has gained weight. Encouraged. 28 v 13. Last report, pains much better. Walks better. General condition improved.
14 ii 12, 0.3 g. Salvarsan 4 iv 12, 0.3 g. Salvarsan 2 iv 13, 0.3 g. Salvarsan 7 v 13, 0.3 g. Salvarsan			None	7 v 13. Last report, pains and general condition slightly improved.
10 xii 12, 0.3 g. Salvarsan 2 i 13, 0.3 g. Salvarsan 22 i 13, 0.3 g. Salvarsan 12 ii 13, 0.3 g. Salvarsan 8 iv 13, 0.3 g. Salvarsan 23 iv 13, 0.3 g. Salvarsan 7 v 13, 0.3 g. Salvarsan 22 v 13, 0.3 g. Salvarsan	 12 ii 13 + 22 v 13 o		22 i 13, venous thrombosis following first injection	12 ii 13, scarcely any pain in legs. 22 v 13, pain distinctly better. Legs stronger. 6 vi 13, walking better.
29 ii 12, 0.3 g. Salvarsan 21 iii 12, 0.3 g. Salvarsan 25 vii 12, 0.3 g. Salvarsan 21 xii 12, 0.3 g. Salvarsan	 25 vii 12 o 21 xii 12 o		None	21 iii 12, complete relief of headache, until three days before second injection. 25 vii 12, headache returned two days ago. 28 v 13. Last report, letter. Absolutely no headache or vertigo. Improved in every respect.
19 xi 12, 0.3 g. Salvarsan 21 xii 12, 0.3 g. Salvarsan 14 iv 12, 0.3 g. Salvarsan 8 v 13, 0.3 g. Salvarsan	 8 v 13 o		None	21 xii 12, considerable improvement. 8 v 13, improvement continues. Better in every way.
18 i 12, 03 g. Salvarsan 21 ii 12, 0.3 g. Salvarsan 14 iii 12, 0.3 g. Salvarsan	 23 i 13 Spinal Fluid 9 vi 13 Blood 0	 Wass. 0 Cells 9	7 iii 12, nausea and vomiting following second injection. In bed a week. Arm stiff and lame	21 ii 12, arm became stronger after first injection. 14 iii 12, speech, gait and headache much improved. 28 v 13, headache, vertigo, gait and sight remain improved. General condition improved.

able degree of symptomatic relief. It is also evident that in many instances the course of the disease is for the time being, at least, checked. Many of the cases which showed negative fixation reactions in serum and spinal fluid prior to treatment have shown symptomatic relief. The cases as a rule in whom there was slight or no improvement, on the other hand, have shown primary reactions of only moderate intensity. The most striking fact is the marked improvement in cases, in whom biological and cytological examinations revealed intense syphilitic reactions. As might be expected, the results of anti-syphilitic treatment are more pronounced in those cases in whom the syphilitic element is most intense.

CONTRA-INDICATIONS.

Advanced cardiac disease, especially of myocardial origin, has been cited as a warning against salvarsan treatment. One case in Class A (V) falls into this category. He received three injections, however, without ill effect. That the heart became decompensated six months following his last injection shows the severity of the cardiac lesion and the apparent safety of salvarsan in this particular instance.

Two cases (Class C, 240 and 416) suggest a contra-indication which has received scant attention in the literature. Neither patient presented symptoms or signs of pulmonary tuberculosis prior to injection. Both developed active processes after their first and only treatment. In one, cough and fever appeared and tubercle bacilli were found in the sputum. The other had an haemoptysis. At the present time it is impossible to locate either patient. What may be a coincidence deserves consideration in the future.

CONCLUSIONS.

The following conclusions seem warranted:

(1.) The syphilitic character of the process was proved, with one exception, in all the cases upon which this work is based.

(2.) It is possible to treat in a satisfactory manner syphilitic diseases of the central nervous system by intravenous salvarsan in an ambulatory clinic.

(3.) Small doses of the drug are necessary for this purpose, but such dosage yields results.

(4.) With the exception of the six cases placed subsequently on serum treatment and excluded from this paper, symptomatic improvement has resulted from thorough treatment in a high percentage of cases of Tabes and in all cases of Syphilis of the Central

Nervous System. No distinct improvement has resulted from treatment of the few cases of General Paresis under observation.

(5.) Improvement in strength and gain in weight is the rule in those who receive benefit. The relief of lancinating pains in Tabes, and Headache in Cerebral Syphilis is most striking.

(6) Biological and Cytological Changes (in blood and spinal fluid) indicate that there is an organic basis to this symptomatic improvement. It is regrettable that those observations were of necessity so limited.

(7.) Improvement has been maintained over a long period of time—in many instances for from one to two years. The results of laboratory investigation when obtainable and the amelioration of symptoms correspond.

(8.) Whereas the failures have been in old-standing cases, it is impossible to show any constant relationship between the degree of improvement and the duration of the nervous lesion.

(9.) The most striking improvement follows the first or second injection. Treatment must, however, be persistent and prolonged and should be continued even if all symptoms and laboratory findings have long disappeared.

(10.) Reactions are infrequent with small doses of the drug. Accidents are rare.

(11.) Focal accentuations of symptoms (Herxheimer) disagreeable, but of short duration. These are often a hopeful sign.

(12.) The most pronounced successes are in those who show evidence in blood or spinal fluid of intense syphilitic infection. The failures have occurred in those showing feeble reactions.

(13.) Phthisis seems worthy of consideration as a contra-indication.

(14.) This treatment might well be advised in all cases of syphilitic disease of the central nervous system and abandoned for the serum treatment when conscientious effort in this simple and safe procedure has failed.

NOTE: Hearty thanks are extended to Dr. F. B. M. Cady for assistance in the administration of salvarsan and to Dr. A. R. Kilgore for the performance of the luetin test.

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SALVARSANIZED SERUM ("SWIFT-ELLIS TREATMENT") IN SYPHILITIC DISEASES OF THE CENTRAL NERVOUS SYSTEM.*

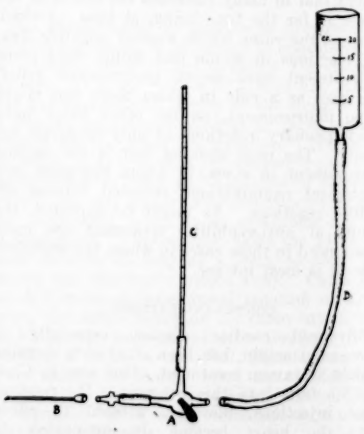
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WHEN syphilis involves the cerebro-spinal axis physicians realize that a condition exists which is always resistant to treatment. To be sure symptomatic relief not infrequently occurs from a moderate amount of medication, but the conscientious physician understands that a cure has not been obtained; in fact the feeling has come to be a certainty that this form of syphilis, more than any other, does not die, but only sleeps, if indeed a repeatedly awakening process can be said to sleep.

Up to a few years ago the chief armamentarium of the neurologist in combatting these diseases was mercury and the iodides, and in the acute exacerbations of these conditions, whether the palsy of an active syphilitic condition or a sudden increase of pain in the tabetic, these remedies were used with greatest effect. The subject of general paresis, however, was looked upon as incurable from the



A. 3-way stop cock.
B. Lumbar puncture needle.
C. Glass tube; manometer graduated.
D. Rubber tubing connected with
E. Bowl of 20 cc. syringe.

* Read in substance before the Medical Section of the Suffolk District Medical Society, Dec. 17, 1913.

V.S. 54 yrs. TABES.

Symptoms. Pains in legs and feet. Incontinence of bladder. Gait unsteady.
Exam. Kn-jks and A-jks absent. Argyll-Rob. pupils. Romberg ++.
No previous treatment.

	SALVARSAN	SERUM	HG	KI		BLOOD WASSER'N	CEREBROSPINAL FLUID Wasser'n	Cells	Protein	
1913 Jan. 30						+++	+++	130		
Feb. 5	.3gm.									
19	.3 "									
Mar. 5	.3 "									
19	.3 "									
Apr. 4	.3 "									
21	.3 "									
May 7	.3 "		↓							
22	.3 "					+				
June 24	.3 "									
July 11	.3 "									
22	.3 "									Pain a little less.
29							+++	23		
Aug. 14	.3 "	30cc					—	3		
27	.3 "									
Sept. 29	.3 "	30 "					+++	26	+	
Oct. 6	.3 "	30 "					+++	21	+	
30	.3 "	25 "					+	8	+	
Nov. 20	.3 "	35 "					+	9	+	Has intervals of 4 days at times without pain. Gait better
Dec. 4	.3 "	30 "					—	11		Bladder improved.
31	.3 "	35 "				—		9		
1914 Jan. 22	.3	30 "			Gold +		+			
Feb. 5	.3	35 "			" +		+	9	+	Improvement continues.
Mar.										

R. J. O'N. 45 yrs. TABES. 2 yrs. Nº 2.

Lancinating pains 2 yrs Difficulty in walking 1 yr Denies syphilis
Exam: Romberg ++ K.j. absent. Pupils react to light.

	SALVARSAN	SERUM	HG	KI		BLOOD WASSER'N	CEREBROSPINAL FLUID Wasser'n	Cells	Protein	
1912 Aug. 26						—	+	70		
Sept. 5	.3gm.									
Oct. 10	.3 "									
Nov. 7	.3 "									
Dec. 12	.3 "									Pains continue
1913 Jan. 1	.3gm.									
16										
Feb. 17	.3 "	30cc				—	+++	70		
Mar.								80		
										Severe gastric crises.
Apr. 26	.3 "	30 "								
May 7	.3 "	30 "					+++	8		
June 20	.3 "	35 "					+++	4		Pain now absent except
9	.3 "	30						13		for 24-48 hrs after medicine
July 23	.3 "	30 "					+++	5		
30							+	1	+	
Aug.	.3 "	36 "					+++	0	+	
Sept. 18	.3 "	30 "					+	1	+	Better in every way
Oct.										
27	.3 "	30 "					+	1		+++ 606 now antigen.
Nov.										
Dec. 11	.3 "	25 "				—	+			Very little pain now
1914 Jan.										
Feb. 5	.3 "	25 "					+	5	+	More pain lately

beginning, and an absolutely bad prognosis made in his case. With the advent of salvarsan a new hope appeared, and in many cases has been realized in the treatment of these affections, as Dr. Spooner's article clearly shows; but along with salvarsan therapy has come the frequent use of laboratory means of testing our patients until it has become only too clear to anybody working with these cases that there is a vast difference in relief of an individual symptom and a cure of the disease. Salvarsan given intravenously has done much good, it almost always does as much good as the older treatment, frequently does more, but in the light of modern methods of control, rarely can be said to cure.

It was with a view to reaching the cases refractory to other forms of treatment and if possible to cure syphilis of the central nervous system that Swift and Ellis commenced, two years ago, their method of subdural injection of salvarsanized serum [1], [2], [3]. Their method presupposes living spirochaetes as the infecting agent, harbored in the lymphatic system and interstitial substance of brain and cord, and supposedly cut off from the blood stream, and therefore not to be reached by drugs which cannot pass into the spinal fluid. It is not only a means of putting salvarsan into this isolated region, but salvarsan in its most effective form, namely, in combination with serum, for it has been clearly pointed out by Ehrlich[4] that salvarsan without the presence of serum is not anti-spirochaeticidal. As a matter of fact the quantity of salvarsan that reaches the spinal canal by this method must be so minute that it is logical to trace benefit from the treatment to the serum which has been acted upon by the salvarsan in vivo than to the drug itself.

The technique which the originators have recommended and to which we have adhered in all essentials is as follows:—one hour after an intravenous administration of salvarsan about 40 c. c. of blood are drawn under aseptic conditions and allowed to clot; the following day the serum is taken off and mixed with normal salt solution to make 30 c. c. of a 40% strength of serum, this heated at 56° C. for ½ hour and put into the spinal canal, replacing spinal fluid withdrawn.† It will readily be seen that in the carrying out of this technique frequent opportunity is given for laboratory control of the progress of treatment, so that in every case dealt with we have a double standard to guide us the clinical symptoms and signs and the laboratory findings in blood and spinal fluid.‡ To bring about symptomatic improvement and even a seeming cure is frequently an easy matter, but to also reduce the spinal fluid to a normal appearance is always a more difficult task, yet necessary before we can claim a bona fide "cure."

The following 18 cases represent the experience of 13 months with serum therapy, although the cases for the most part have been observed for a much longer time. Generally the patients under discussion were placed upon serum treatment because refractory by one or both of the standards above considered, to other forms of therapy. Improvement in them should therefore be fairly attributed to salvarsanized serum; failure to improve, on the other hand, cannot be laid solely to this form of treatment, but must be shared with the others.

† See page 461 for Tests. ‡ See page 461 for Methods.

THE GROUP OF TABES.

PATIENT No. 1, V. S. is a tabetic with the usual symptoms and signs of this disease. He was benefited somewhat by intravenous salvarsan, but we thought to hasten this improvement by intraspinous injections, of which he has received nine with benefit as regards pain, bladder and general condition and to a less extent his walking. Symptomatic improvement has unquestionably proceeded more rapidly in the last 6 months under serum injections than in the previous 6 months under intravenous salvarsan alone.

The laboratory findings, however, have not varied greatly in the past three months, and we have been so far unable to reduce his spinal fluid to normal according to any test.

No. 2. R. J. O'N. had typical symptoms and signs of advancing tabes, pains and difficulty in walking, rendering him useless. He received five intravenous salvarsan injections without benefit either symptomatic or from a laboratory point of view. He was then given serum injections, eleven in number, throughout this year with marked benefit. His pain is now almost confined to a period 48 hours following injections and there is coincident improvement in his spinal fluid.

No. 3. A. F. Y. suffers principally from gastric crises, the intervening time between which was lessened by intravenous treatment from two week intervals to two month intervals. We are now seeking to still further better his condition by the use of serum, of which he has received five injections with no material change in condition.

CASE No. 4. J. J. C. is a motorman with symptoms and signs of tabes, the former extending over a period of 17 years. Salvarsan given by vein did not help him either from symptomatic or laboratory point of view; but a year's course of serum therapy, including 7 injections, has at last made him pain free, and tests normal, even using the strongest antigen on the spinal fluid. He will be carefully watched for evidence of relapse.

These four cases are of the hopeful type, showing primarily evidence of lower spinal cord involvement in an active stage as demonstrated by positive laboratory tests. The three treated for sufficient length of time to judge show improvement, and two of these have responded promptly and well to spinal injections after all other methods had failed.

L.W.B. General Paresis? № 9

Chancre 1898 Feb'y 1912. Memory disturbances, hallucinations, delusions. Westhaven.
Feby 1913. Compl. 9 months, and inability to do his work satisfactorily.
Exam. negative, except for slight speech defect.

	SALVARSAN	SERUM	HG	KI		BLOOD WASSER'M	CEREBROSPINAL FLUID Wasser'n	Cells	Protein	
1912 Feb.						++	++	+		
1913 Jan.	.4 gm (Ehrl)									
Feb. 3						+++	+++	44		Came under care of writer.
14	.3 -									
Mar. 15	.3 -									
29	.3 -									
Apr. 12	.3 -									
27								44		
May 3	.3 -	25 cc.					+++	71		
8	.3 -	35 -					+++	6		
22	.3 -	35 -					+++	22		
June 11	.3 -	32 -					+++	9	+	
July 29	.3 -									Passed C.S. exam. "Physically sound".
Aug. 14	.3 -	34 -					-	2		Wife says he is much better than for long time.
Sept. 30				↓						
Oct.										
Nov.										
Dec. 9										Lost his job, because "too slow".
26	.3 -	30 -				+	+++	82		

J. J. C. 43 yrs. Tabes. (17 yrs.) № 4.

1st Visit. 1908. Compl. pains in legs and arms, incontinence bladder and unsteadiness.
Exam. A.j. and K.j. absent. Romberg and ataxia + Pupils react.
1912. Symptoms and signs unchanged. Denies syphilis

	SALVARSAN	SERUM	HG	KI		BLOOD WASSER'M	CEREBROSPINAL FLUID Wasser'n	Cells	Protein	
1912 Apr.	+ } 23.									
May	+ }									
June 19	.3 gm.					+				Symptoms same.
July 13	.3 -									Pain less for short time after injection
Aug. 7							+	60		
Sept.										
Oct.										
Nov. 5	+ } 23.			↓						
Dec. 5	+ }									
1913 Jan. 21							+++	55		Much pain for 6 weeks. Discouraged.
23	.3 gm.	30 cc.								
Feb. 18	.3 -	30 -				-		54		
Mar. 18	.3 -	30 -					+++			
28	.3 -	30 -				+!	-	15		
May 13	.3 -	35 -				-	+++	13		No pain for 1 month.
June										
July										
Aug. 17	.3 -	35 -					-	1		
Sept.										
Oct.										
Nov. 19	.3 -	30 -					-*	2		Has not lost a days work since August. Gain in weight.
Dec.										
										*New antigen.

The next two belong to a group which has been designated "atrophic," with evidence of little or no activity from the laboratory point of view (perhaps because of insufficient delicacy of these tests), though still having severe pain. Both cases are of some 20 years standing.

CASE No. 5. Mr. S. received only two injections and claimed his pains were worse, too small a number to judge of the value of the treatment.

CASE No. 6. S. has thus far received three injections and while the pain continues with nearly the same frequency—namely, one attack a day—it is less severe when present. His bladder has recovered considerable tone. He has also gained 10 pounds in the last month and is in every respect more comfortable.

Two cases of tabes presenting progressive primary optic atrophy were treated as follows:

No. 7's eyes were rapidly undergoing atrophy, in spite of intravenous salvarsan. We hoped with serum treatment to stop the process, but only succeeded in slowing it a little, the patient having gone on to almost complete blindness. On the other hand he has showed marked improvement in general condition, so much so that he wished to continue treatment for this effect. With him we see little change in the serologic tests.

No. 8. G. A. P.'s optic atrophy was more slowly progressive. In spite of two courses of intravenous salvarsan (in all 9 doses of .3 gram each), and much mercury over a period of eleven months, vision progressively failed, with serum during the past four months—7 doses in all—the atrophy does not seem to be advancing, and laboratory tests have improved greatly.

SUMMARY.

Eight cases of tabes were dealt with, falling naturally into 3 classes: Nos. 1, 2, 3, 4 giving evidence of lower spinal cord disease in an active stage, 5 and 6 active as regards symptoms, but quite inactive to our laboratory tests; the third class, Nos. 7 and 8 "superior tabes" in which primary optic atrophy was the reason for undergoing treatment.

IN CLASS 1, lower cord tabes active both clinically and to tests, 3 cases, treated for a long period of time have received marked symptomatic relief, pains, bladders, general strength and weight all improved. Signs have not been seen to change. From the laboratory point of view marked benefit, in one case going to a negative Wassermann in the fluid tested with the re-enforced antigen. The fourth case of this class has shown no change in any respect as yet on five injections.

CLASS 2 contains two cases of long-standing tabes of some 20 years duration. No marked change was anticipated in them because of the inactive condition of the fluid, so that when one patient (6) increased in weight 10 pounds in 30 days and declared his pain was benefited we were agreeably surprised.

CLASS 3, the optic atrophy cases, have been the most resistant to treatment. Of the two in our series one (7) has continued his course to blindness with hardly any moderation in rapidity, and no change in laboratory tests. The second (8) with much more slowly progressing atrophy is holding his own as far as sight is concerned, with improvement in laboratory tests. It has been said that optic atrophy is contraindication to the use of salvarsan, but we have used it now in 18 cases, without any increase in rapidity of the process, and with, I believe, benefit in several. The majority, however seem not to be affected one way or the other.

Four cases may be grouped under *general paresis*, but in two the diagnosis may well be questioned. As others, [5], [6] had spent much time on advanced cases, with not too satisfactory results, we determined to try only early ones, so early in fact that in two we hardly feel justified in making an absolute diagnosis.

No. 9. L. W. B. 14 years after his primary infection, showed evidence of mental disturbance, with hallucinations of sight and delusions (though not of grandeur) so that confinement was necessary, but with negative physical signs. He had positive laboratory tests throughout. He has responded somewhat to treatment, his wife noting much improvement in his actions. His tests improved while under treatment, but relapse, in the laboratory sense, promptly followed cessation of injections, as will be seen in his chart.

No. 10. Mrs. L. T. has had typical epileptiform seizures, and has besides Argyll-Robertson pupils, but when taken in hand had no mental stigmata of dementia paralytica. She however continued to have her epileptiform attacks and later developed hallucinations and delusions, and commitment became necessary. It is interesting to note that in her case the reaction to the medicine was not one of pain, but either no reaction at all, or occasionally a production of hallucination of sight and hearing.

No. 11. H. C. D. was unequivocally diagnosticated general paresis by the neurologist referring him for treatment on the basis of epileptiform seizures, dizzy attacks and mild mental disturbance coming on 8 years following a chancre. Physical examination has always been negative, but laboratory tests all positive except that the blood is positive only to the stronger antigen. He is undeniably much better for treatment, as evidenced by his appearance, his capacity for work, his actions and his entire freedom from epileptiform attacks since starting treatment. From a laboratory standpoint also he has shown steady benefit from the injections. Like case 9 symptomatic relapse was accompanied by "laboratory relapse" when treatment was discontinued for six months.

No. 12. A. M. S. is a girl of 7 years, syphilitic from her first year and exhibiting for over a year epileptic attacks, mental restlessness and gen-

eral mental backwardness. She has inactive pupils, as her sole physical sign of syphilis of the nervous system. In two respects she has benefited by treatments;—she now has no epileptic seizures and she is neater and cleaner in her habits; even the neighbors, harsh critics of children, admit this. The treatment of this case was necessarily carried out in a different manner from the others. Inasmuch as she had very small veins we were forced to use a foreign serum. The first six injections were with blood obtained from her father in the usual manner, he, however giving a negative Wassermann test and unquestionably not suffering from active syphilis in any form. The last four injections were with serum obtained from tabetics under treatment on the same day.

SUMMARY.

The influence of salvarsanized serum has been distinctly less beneficial in this group than in either the foregoing or subsequent group. All have shown amelioration of laboratory findings, and supposedly therefore diminution of activity of the syphilitic process. This laboratory improvement has however come with greater difficulty than in any other group; nor has it been so constantly parallel with symptomatic improvement. One undoubted case of general paresis has proceeded to a worse condition without material modification in the course of the disease (10); but in two epileptic attacks have ceased, though in one of these petit mal seizures seem to have replaced the more severe ones.

No. 13. Miss N. R. may best be classified in a group which is gaining in recognition, perhaps best called *"latent nerve syphilis."* She shows no true stigmata of general paresis, yet her symptoms are referable more to brain than cord; a typical Argyll-Robertson pupil and occurrence of symptoms probably seven years after infection clearly take her out of the class of so-called cerebro-spinal syphilis. We feel that she is a candidate for general paresis, but cannot certainly place her in that category. She has as yet had only 4 serum injections but symptomatic and laboratory improvement is already observable. It is in this group of cases, difficult of diagnosis frequently, in which we may expect much from intensive treatment.

The last group, admittedly the easiest of all to help, even with older forms of treatment, is that of *cerebro-spinal syphilis*, with a latent period of months or only a few years at most. In all of these we see marked benefit and in them we may, if in any, hope for a cure.

No. 14. A. C. had an unconscious attack about a year following his primary lesion. He was later found to have choking of both optic nerves and positive laboratory tests. Intravenous salvarsan helped him, but we thought to clinch its beneficial results with serum treatment, and so far we have met with success. He was discharged in October clinically well, and tests almost perfect. Three months later he reported on request, still without symptoms and his spinal fluid still further improved; the Wassermann reaction and cell count became normal first, later the proteid tests all became negative (Noguchi, Nonne and alcohol), but we find the Lange gold test alone evidence of his syphilitic infection.

No. 15. V. Z. denies syphilitic infection, but presented himself with a history of failing sight for eight months past, and headache. He showed double optic neuritis, concentrically contracted fields and complete internal ophthalmoplegia. Intravenous salvarsan relieved symptoms and the optic neuritis, but ophthalmoplegia and tests remained positive. Serum administration has greatly improved the fluid findings; and on my last examination on Dec. 1st. the accommodation reflex in the left eye was found to have returned.

No. 16. W. E. N. is a case of cerebral "neuro-relapse." In spite of (or "because of" as some say) five salvarsan injections, mercury and iodide, he developed a cerebral syphilitic process; for three weeks he had a temperature and pulse record closely simulating typhoid. He was benefited by more salvarsan and two serum injections, but on June 20th. while away from the hospital on leave of absence he had a shock leaving him paralyzed on the left side. At this point I was asked to see him, recommending, much to the disgust, I fear, of one physician, more serum injections, arguing that he had done well on those which he had received, but that he needed more of them. He has, as his chart shows, done well. his complaints are none, except that he cannot find work to do, and the condition of his fluid is greatly improved. In spite of freedom from symptoms he is of course not cured.

It is interesting that here laboratory evidence of syphilis has disappeared more quickly in spinal fluid than in blood, unlike the case with long-standing involvement of the cerebro-spinal axis.

No. 17. W. B. B. is another case of "neuro-relapse," this time the cord being the objective point. His walking, progressively more spastic when serum treatment was begun is now nearly natural, and a bilateral ankle clonus which was present has disappeared, although Babinski's sign still remains on both sides. His tests also coincide with his clinical improvement.

No. 18. J. D., the last of these cases is a particularly interesting patient. Since his first injection of salvarsan by vein, after which his only symptom, headache, disappeared, he has belonged to the class of "latent nerve syphilis." He might have been discharged after one injection to testify to the great efficiency of the one-dose treatment. But unfortunately for his peace of mind we were enabled to show that he had much trouble still present and repeated treatments hardly benefited the tests. After five intravenous injections, it was determined to try the effect of serum treatment on his tests (for all this time he had no symptoms or signs of disease other than the laboratory findings.) A prompt response was the result and five injections improved the fluid to a considerable extent, when the patient was forced to leave town for the summer. During the three

W.E.N. 20yrs. CEREBRAL SYPHILIS (Neuro-relapse) No 16.

Chancre, Dec. 1912. Onset of cerebral syphilis in March in spite of adequate treatment.

	SALVARSAN	SERUM	HG	KI		BLOOD WASSER'N	CEREBROSPINAL FLUID Wasser'n	Cells	Proteid	
Dec.										Chancre.
1913 Jan.	5 treat-									Secondary symptoms.
Feb.	ments in									
Mar.	O.P.D.									Headache
Apr. 15						−	+++	320		"Typhoidal temp".
May 13	Two treatments							150		
22	House						+++	144		
June 27								160		
11							+	68		June 20. Left hemiparesis
23	.3 gm.	30cc.					+	68	+	
July 8	.3 "	30 "					−	60	+	
Aug. 30	.3 "	24 "					−	3	−	Paresis gone, exc. slt facial.
Sept. 26							−	4	+	Headache again.
Oct. 6	.3 "	30 "				+++	+	3		
28	.3 "									
Nov. 6	.3 "									
20	.3 "									
Dec. 4	.3 "	30cc					+	1		Feels quite well.
Jan. 10	.3 "	30 "				+*	−*			

A.C. 25 yrs. CEREBRAL SYPHILIS. No 14.

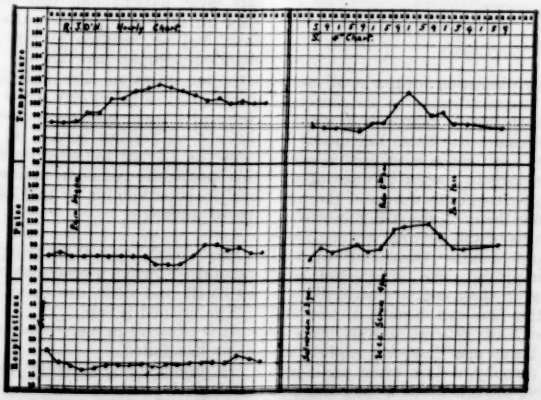
Syphilis 1911. July 1912, unconscious attack lasting 6 hrs, no paralysis
Dec. 30/12 Complaint: Transitory weakness arms + legs Transitory diplopia. Vision.
Exam. Choked discs, both eyes. Reflexes + pupils normal.

	SALVARSAN	SERUM	HG	KI		BLOOD WASSER'N	CEREBROSPINAL FLUID Wasser'n	Cells	Proteid	
1912 Aug.	+ (Dr. V.H.)									
Sept.										
Oct.										
Nov.										under charge of writer.
Dec.								+		
30						+	anti'g	110		
1913 Jan. 10	.3 gm.									
22	.3 "									
Feb. 5	.3 "									
Mar. 20							−	20		Better. Eye movements perfect. No choking.
Apr. 26	.3 "	30/30cc					+++	140		Jaundice ?
May										
June										
July 11	.3 "	30 "					+	23		
Aug. 31	.3 "	30 "					−	8		Vision normal. Fundi nor'l
Sept. 27	3 "	30 "					−	4	+	
Oct. 9	3 "	30 "					−	5	+	Feels quite well.
Nov.										
Dec. 29										Vision almost perfect.
Jan. 12	.3 "	30 "			Gold +		−*	0	−	Neurolog. Exam. negative.

J.D. 23 yrs. SYPHILIS C.N.S. № 18

Syphilis 3 years ago; inadequate treatment.
For 5 weeks constant headache, no other symptoms.
Eyes. negative.

	SALVARSAN	SERUM	HG	KI		BLOOD WASSER'N	CEREBROSPINAL FLUID Wasser'n	Cells	Protein	
1912 Sept. 11	.3 gm.			↓		−				
21						−				
Oct. 23							+++	578		
Nov. 7	.3 "									Wife. Headache gone.
Dec. 19	.3 "									
1913 Jan. 10	.3 gm.									
23	.3 "									
Feb. 17							+++	340		
Mar. 6	.3 "	30 cc.								
27	.3 "	30 "					+	82		
Apr. 16	.3 "									
23	.3 "	35 "					+	51		
May 7	.3 "	30 "					+?	36		
June 22	.3 "	30 "					−	19		
4	.3 "	30 "					+	40		Feels perfectly well.
July			↓							
Aug.										
Sept.										
Oct. 1						−	+++	475		No symptoms.
4	.3 "	30 "								
Nov. 27	.3 "	30 "					+++	66		
15	.3 "	30 "						50	+	
Dec. 2	.3 "									
Jan. 8	.3 "	25 "				−	+++	45	+	
Feb. 22	.3 "	30 "			Gold+		+++	15		



TYPES OF REACTION.

months following he was perfectly well, but on October 1st. to our astonishment the fluid had returned to nearly its original state. Again the condition and possibilities of future trouble were explained to him and again he has submitted himself to our attempts to eradicate a condition which bothers him not at all, but which, we feel, is a constant source of danger to him. This case more clearly than any other shows the efficiency of salvarsanized serum in attacking the pathological process, where salvarsan alone had failed; again laboratory relapse when treatment was discontinued is followed by improvement again with treatment resumed.

SUMMARY.

Summary of these five cases of active cerebrospinal syphilis shows improvement according to all the standards we have set up, symptoms, signs and laboratory tests. The critic, however, will rightly suggest that this group usually does very nicely with other treatment. He will also admit that some do not, and, as a matter of fact 4 of these 5 cases were chosen for serum therapy because resistant to other forms of treatment. Thus No. 15 showed symptomatic improvement from salvarsan administered by vein, but the use of serum treatment was promptly followed also by laboratory changes for the better. Again two cases of "neuro-relapse" occurred while the patients were under intravenous salvarsan, mercurial or iodide therapy; and serum treatment alone seemed efficient to stop the process. Patient No. 18 showed no laboratory improvement from intravenous salvarsan and KI, but when placed upon serum treatment improvement commenced; in spite of mercury (which was poorly tolerated) this improvement could not be maintained, a "laboratory relapse" setting in, which seems, however, to be again controlled by salvarsanized serum.

DISCUSSION.

The cases under discussion form a small number from which to generalize, as to the efficiency of a given treatment; still, more can be argued from these than from a hap-hazard group of 18 cases in that they are for the most part selected cases; they were largely chosen because of unsatisfactory results from other forms of therapy. Of these 18 cases then, representing a variety of types of syphilis of the nervous system, more or less refractory to other treatment, we find 14 distinctly improved, one unchanged, and three continuing on their course essentially unchanged. Of the four not benefited, two fall into the category of general paresis, two of tabes. Of the latter one showed a rapidly advancing optic atrophy, taken when sight was already far gone, the other was a long-standing case of the "atrophic type."

Of those benefited, the improvement for the most part has been striking, but seldom rapid. Improvement has for the most part been slow, but steady; those who have been persistent in treatment are those who have almost always obtained the most benefit; it has been striking and often gratifying to see patients return again and again for injections, without any urging; even those who underwent the most severe reactions were unremitting in their attendance, and this alone testifies to the good they felt they derived.

The above charts represent 219 venous injections of salvarsan or neo-salvarsan, and 126 serum injections. Of all these we have seen no harmful effects, other than the "reaction," below considered. True, we have persistently used small doses, .3 gm. of salvarsan and 30 c. c. of a 40-60% strength serum; we should have preferred to use larger doses, but as the patients were necessarily mostly ambulatory as far as the venous injections were concerned we could hardly do otherwise.

The reactions obtained are interesting. Tabetics almost always have severe pain, sometimes confined to the legs, frequently over the entire body. Two tabetics in particular would commence their reactions at a set time, one 3 hours the other 1½ hours after the serum injection, and with each pain the muscle bundle in the region affected would quiver as if stimulated by an electrode, first in one part, then another. These reactions last from 24 to 36 hours, and frequently are accompanied by rise of temperature, and less frequently of pulse also, there being no increase of the blood leucocytes (see charts.) Reactions in the other cases, one of superior tabes, the other a paretic, were quite different; these did not complain of pain, but on several occasions became hallucinated. One said "I see the trees looking short and the room all out of proportion. I hear voices speaking to me and yet I know it is not right." Again this same patient had bad dreams the night after an injection. Some patients on the other hand had no reaction at all. One, No. 18, a chauffeur, would take his car out three hours after an injection time and again, and never would feel any effects from the treatment. Naturally, some hesitation was felt concerning the use of foreign serum in the case of patient No. 12, but the only ill effects noted from this procedure was an urticarial eruption on one occasion similar to that obtained from the use of antitoxin.

Our *conclusions* then from the use of salvarsanized serum, a procedure so ably elaborated by Swift and Ellis, are these:

The method is safe.

It is effective in many cases where other treatment has failed.

It undoubtedly attacks syphilis from the etiological point of view, thus tending to cure the disease as well as relieve symptoms.

Its greatest effect is in the group of cerebrospinal syphilis, in which a cure may confidently be looked for in some cases with persistent treat-

ment; second, in tabes, in which arrest of disease process is often possible by this means; least effective in general paresis, when well developed, though here if taken in the pre-paretic stage encouraging results may be obtained.

With the originators of the method, we agree that persistence in its use is the key-note to success in the use of salvarsanized serum; consequently an estimate from the injection of one or two doses is a judgment more of the "reaction" which in some cases is severe, than of the therapeutic effect of the serum.

With the technique of administration and necessary control examinations as laborious as at present, we do not expect to see this form of treatment in general use, but believe it should be employed by those especially trained when other treatment fails in whole or in part, or in cases where haste is required in order to save vital tissue.

I wish to express my thanks to Dr. E. W. Taylor, chief of the neurological clinic at the Massachusetts General Hospital, through whose cooperation this work was possible; also to Drs. H. C. Baldwin, W. E. Paul and G. A. Waterman for encouragement and cases both in hospital and private; also to Drs. Swift and Ellis of the Rockefeller Institute for going over technic and protocols with me.

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[7] Hough, W. H.: Intraspinous Injection of Salvarnized Serum in the Treatment of Syphilis of the Nervous System, Including Tabes and Paresis, Jour. Am. Med. Asso., Jan. 17, 1914, vol. lxii, p. 183.

[8] McCaskey, G. W.: The Autoserosalvarsan Treatment of Syphilis of the Central Nervous System, *Idem*. p. 187.

[9] Ferrier in an address before the International Congress, London, 1913, speaks of this method as a great advance in the treatment of these disorders.

† LABORATORY TESTS.—The following technic in carrying out laboratory tests was employed in the spinal fluid: Cell count by means of the Zeiss cell counting chamber, using Zappert-Ewing ruling. A stain (methyl violet 6.1, acetic acid 2.0, water 50.0), drawn to mark 1 of the "white counter," and spinal fluid to 11, *immediately* after withdrawal of fluid from body; 1 cmm. counted on two slides and correction made for dilution. An accurate differential count is not possible by this means, but a rough index of the kind of cells present is possible, and these are almost invariably mostly lymphocytes. Proteid tests: (1) ethyl alcohol precipitation gives a rough index of the amount of coagulable proteid present, though normally there is some clouding. (2) Noguchi globulin reaction; 0.2 cc. of fluid + 0.5 cc. of a 10% butyric acid solution in normal saline boiled, and 0.1 cc. of a normal NaOH solution added and again boiled; a precipitate indicates a pathological condition of the spinal fluid. (3) Nonne's Phase I reaction; equal parts of fluid and saturated solution of ammonium sulphate to form a ring of precipitated proteid at their junction in a pathological condition. These tests have not all been performed on a given fluid; in fact it is only recently that I have begun to use the last-named as a routine procedure. Wassermann reaction performed at the Havard Medical School under direction of Dr. W. A. Hinton, and the Massachusetts General Hospital, under direction of Dr. Homer Wright until three months ago using the following antigens: (1) heart, (2) syphilitic liver of foetus; more recently a heart antigen reënforced with cholesterin; 0.5 cc. fluid used in each instance. Blood. Wassermann as above, using 0.2 cc. serum.

‡ METHODS OF ADMINISTRATION OF SALVARSAN AND SERUM.—First, salvarsan, rarely neosalvarsan, given in the usual manner intravenously. It is quite necessary that the salvarsan be given without cutting to expose the vein, inasmuch as many injections are required. Second, blood withdrawn either by means of a syringe and transferred to a sterile test tube or drawn directly into the tube by means of a suction apparatus. Third, serum pipetted off next day, mixed with saline to 40%, 50% or 60% strength as the case allowed and heated in water bath at 56° C. for one-half hour.

Fourth, lumbar puncture under cocaine anesthesia with the apparatus shown in cut. By means of a 3-way stop-cock the normal pressure is obtained, fluid is then allowed to escape by turning cock until the pressure has been reduced to about 40 mm. or until 20 cc. have been obtained, the serum is then allowed to flow in by gravity from a height not exceeding the pressure of the fluid as originally determined. By simply turning the stop-cock and thus connecting manometer with spinal canal the pressure may at any time during the flow be measured, and the rapidity of flow be controlled so that the pressure may be very gradually re-established. It is usually found that 30 cc. of serum may be injected to replace about 15 cc. of fluid withdrawn if plenty of time, 5 to 10 minutes, is taken at this step, which will leave the pressure the same as at the beginning. If done properly this whole procedure is of no inconvenience at all to the patient after the first puncture of the cocaine needle. The after-effects are either (1) reaction to the medicine, or (2) some headache and nausea, which not infrequently follow any lumbar puncture, no matter how carefully carried out.

EPICONDYLITIS (FRANKE) OR TENNIS-ELBOW.

BY WILLIAM PEARCE COUES, M. D., BOSTON.

This interesting affection first described by Bähr[1] in 1900 and later by Clado[2] and Franke[3], though known by some physicians, has not been described or studied in America to any great extent. Many diagnoses have been made of the condition such as "bursitis of the elbow," "neuritis," sprain, and functional disability from over-use. The injury leading to the disability is not uncommon in those who take much physical exercise, particularly lawn-tennis, whence the name: "tennis elbow." As will be shown later, however, athletic sports in which strenuous and exact movements of the arm play an important part, are not the only causes of the trouble. The history of the affection in those in whom it occurs in the course of their favorite exercise is almost invariably as follows: Immediately after a stroke, or occasionally some few hours or days afterwards, pain is noted in the elbow, usually the right, in the neighborhood of the external condyle. This pain may be so severe and sudden as to seem to paralyze the arm temporarily, so that all movements are performed with the greatest difficulty or not at all. This pain is usually markedly increased by extension of the forearm, not so much by flexion and may be intermittent or constant, and returns immediately the exercise is taken up again. Lesser degrees of pain and disability are noted in many cases. The pain is most sharply limited to the neighborhood of the external epicondyle of the humerus.

Examination soon after the injury usually shows no marked swelling of the elbow and no ecchymosis. The motion of the elbow is not as a rule limited in flexion or extension; but there may be great pain on forced extension in the neighborhood of the external condyle. The radial head is found to rotate perfectly. Pronation and supination are usually performed without pain. In short, the examination would seem to certainly rule without any marked bony lesion

or fracture. On pressure, an exquisitely painful spot the size of a dime, is found directly over the external epicondyle. Much pain is felt in this spot on full extension of the forearm, which radiates down the arm to the fingers. The pain is increased when the fingers are closed over a round hard object, as a crystal globe. It is also brought on or increased by such motions as reaching a book from a library shelf and particularly in putting on a coat. After such movements, the arm may feel weak and useless for a considerable time. Sometimes, there may be a suggestion of slight thickening felt over the external epicondyle; but this is never marked. Crepitus or abnormal mobility of the epicondyle is never noted.

After a period of weeks or months, with or without treatment, the pain and the tender spot gradually disappear. The patient may again take up the favorite sport, with, however, a possibility of a speedy recurrence of the trouble. A considerable disability and discomfort may result from the injury,—much more than that only necessitating giving up the chosen exercise. Exactly the same trouble occurs from hard manual labor, as will be seen later.

From such a definite localization of the pain and tenderness with other suggestive symptoms of this injury, we may justly presuppose some characteristic and constant lesion of the tissues immediately adjoining the external condyle of the humerus. Tears of the fascia or some muscular bundle have been suspected in a general way, as well as nerve implication. Whatever the lesion is, it seems generally limited to that part of the external epicondyle affording attachment to the supinator brevis, extensor communis, extensor minimi digiti and anconeus muscles. Besides this particular region the humero-radial part of the joint capsule to which some of these muscles are attached has been suspected. Regarding the mechanism of the injury, it seems probable that it occurs during partial extension of the whole arm, the elbow slightly flexed at a time when the forearm is midway between pronation and supination, and that some of the muscles exerting a powerful pull, tear off their attachments to the external epicondyle, perhaps tearing off small pieces of bone with them. In cases where the exercise is repeatedly attempted after the initial injury, this process may be repeated in a lesser degree again and again; thus giving rise perhaps in some cases to a localized periostitis of the external epicondyle. This also may be kept up by the ordinary movements of the arm in daily life. It is established that simple rest of the elbow for a short time does not cure the condition. It may become quiescent and the patient might think it entirely cured, when the first stroke of his racket will bring back all the pain and disability. That numerous theories of the etiology of this condition have been put forth other than the above will be seen later. Certainly some of them do not seem to be compatible with the findings of the typical cases. Some authors even assert that the condition is noted without any traumatism at all and is the result of a bacterial infection at some time. It may be said that a careful examination of the cases seen gave no sign of a neuritis. The lesion is too sharply localized to be due to any involvement of the elbow joint as a whole. Exquisite tenderness on palpation of the epicondyle over a spot the size of a dime is pathognomonic of the trouble.

Brief anatomical considerations are now in order before taking up the various authors' views.

The external epicondyle, the radio-humeral part of the joint capsule and the supinator brevis muscle are the structures suspected of involvement by those who have made a study of this condition. According to Sobatta[4], "the centres of the epicondyle appear between ten and twelve years. But complete ossification of all parts of the bone and disappearance between synchrondroses between epiphyses and diaphyses do not occur until between the twentieth and twenty-second year. From the external epicondyle arise the superficial extensor muscles of the forearm. The external lateral ligament of the elbow, otherwise known as the radial, arises from the external epicondyle, and passes as to fassiculi to the annular ligament, with which a portion of its fibres are continuous. The humero-radial joint does not act as an independent joint. From a practical standpoint the elbow may be regarded as a hinged joint whose axis of movement passes through the two epicondyles. The humero-radial joint does not take part in this movement as the ends of the bones are hardly in contact in flexion. The humero-radial articulation is only passively involved in the pivot movement of the proximo radio ulna joint, since the radius rotates in the socket about its long axis, and the actual pivot movement takes place in the proximo and distal radio ulna articulation." According to McAllster[5], "the outer epicondyle is short and convex behind and its extremity inclines forward. Its upper part affords attachment to the extensor carpi radialis brevior. Below this from above downwards and backwards come the extensor digitorum communis, extensor minimi digiti, extensor carpi ulnaris, anconeus, and close to the supinator brevis the capsular ligament. The origin of the extensors of the hand area extends behind the capitellum as far as the outer lip of the trochlear." The supinator brevis, the muscle supposed to be most concerned in epicondylitis, or tennis-elbow, is a deep and short muscle under the above-named extensors. "It arises from the back of part of the epicondyle, external lateral ligament, orbicular ligament of radius and from a rough ridge on the ulna below the lesser sigmoid cavity. It is inserted in the outer third of the radius." If this muscle is injured in the movements of the arm which cause tennis-elbow, it is difficult to see how injury of the external lateral and orbicular liga-

ments and joint capsule can be avoided, they are so intimately connected. The orbicular ligament, moreover, is said to limit to some extent pronation and supination so that its injury in tennis-elbow would seem very probable.

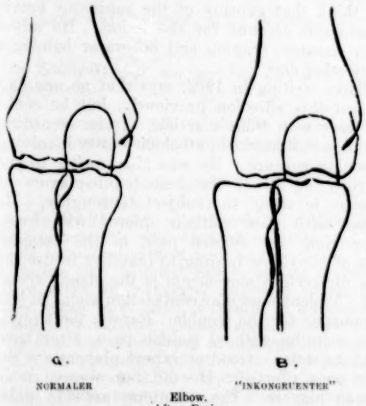
Franke[5] named the affection epicondylitis. He speaks of its being due to injury in sports, particularly tennis, and also of its arising without trauma. He did not observe it in children but in men and women of the leisure class. He speaks of the classic pain with localized tenderness and believes that at times the process is due to a localizing of the inflammation due to the influenza bacillus. He cites his own case in this regard. He never saw it in those having gonorrhea, syphilis, diabetes, nephritis or tuberculosis. He is inclined to believe that a nerve disturbance of some sort and rheumatism may cause the trouble at times. He never noted pain in the radius or ulna in these cases. In two of them there were swelling of the skin over the epicondyle. Other pains and aches in the neighborhood of joints and bones were noted by him in some of his cases, especially the internal condyle of the femur, the tarsal and metatarsal bones.

Anti-rheumatics and Preissnitz compresses were used. Fixation of the elbow gave the best results. He chiseled off the epicondyle in some cases, but does not state the result of this procedure.

Bernhardt[6] considers that over-extension of the muscles attached to the external condyle is the cause of the trouble. He states that it has been named: "Epikondylagie" by Féré.

Momburg[7] reviews Franke's article and cites briefly 14 cases of what he terms periostitis from "epicondylitis humeri." Almost all his cases were in the laboring class and the injuries were contracted during manual labor in a number of cases. Lifting a heavy weight was given for the causes of some. The complaint in all his cases was the same:—pain in the elbow in the region of the external condyle so severe that work had to be stopped. This pain often extended from the epicondyle to the forearm and fingers; also at times to the upper arm and shoulder. (He is the only author who speaks of this.) Pronation, supination, flexion and extension of the hand and fingers, (not of the forearm,) was particularly painful. Objectively pain on pressure over the epicondyle was the symptom. No changes were noted in the skin over the epicondyle. Sometimes what seemed to be slight doughy swelling of the periosteum was detected. However, the Roentgen pictures show no bony changes. He can not agree with Franke that a nerve or rheumatic trouble is the cause of the pain and tenderness about the epicondyle. He believes it is a periostitis of the epicondyle, and that it is caused by muscular pull, and likens it to the periostitis of the tibia of soldiers, from constant marching. The trouble was seldom noted by him in the internal condyle, and he gives the reason as due to the different muscular attachments.

Preiser[8] refers to Franke's, Momburg's, Clado's and Bernhardt's articles and says he has seen the trouble many times. He thinks it gives a typical Roentgen picture and that this means a static trouble with the head of the radius. He shows by a diagram that in his cases the radial head is outside of a line drawn down as a continuation of the external epicondyle.



Elbow.
After Preiser.

The radial "inkongruenz" of Preiser.

Sketch A. Normal.

Sketch B. The radial head is outside of a line drawn down as a continuation of the epicondyle. This Preiser believes obtains in cases of "Tennis Elbow."

He thinks that the condition is predisposing to and often really signifies arthritis deformans cubiti. He believes that only in an elbow already deformed in the periostitic shadow visible. He does not consider the name "epicondylitis" or "periostitis" as appropriate; and instead proposes the term: "static deformity." His explanation of the trouble is as follows: that the supinator longus and supinator brevis muscles, at least the fibres of each that reach the anterior joint capsule, are antagonistic at the moment of simultaneous contraction of both muscles. Said simultaneous contraction of both muscles occurs only in one movement, when the hand is snapped strongly and quickly from volar flexion into strong adduction.

He finds, moreover, that the radio-humeral joint capsule is always very tender to pressure. No sign of periostitis is shown in these cases. He does not think influenza infection has caused the trouble. He says he had two cases in tennis-players. The onset of the pain in both cases was sudden. The pain was localized in the external condyle region and there was slight swelling. Perfect extension was possible in these cases, ruling out bony blocking of the joint by any gross fragment. The Roentgen picture showed normal bones in both cases. There was a collection of fluid at the side of the capsule

and he believed the lesion to be a humero-radial joint capsule tear, with chronic capsular inflammation. He cites the case of a smith who had exactly the same lesion as the two tennis players. This man was obliged to strike an iron kettle in a certain way while soldering it. He was obliged to have his hand round his body midway between pronation and supination with the elbow flexed and the whole arm adducted. Preiser does not think that rupture of the supinator brevis muscle can account for the lesion. He advocates massage, friction and hot-water bandages every other day.

Clado, writing in 1902, says that no one had studied this affection previously, but he could not have seen Bähr's article. It is, according to him, a well marked pathologic entity involving muscular rupture. He was able, owing to the courtesy of 12 of the best tennis-players of France, to study the subject thoroughly. He agrees with those authors quoted who wrote after him, that sudden pain in the external part of the elbow leading to inability to use the arm for certain movements is the classic symptom. Violent muscular contraction seems to him responsible for the trouble. Rarely, the trouble may come on without sudden pain, after hard play, he states. Good or expert players are the only ones affected. He did not observe it in women players. The symptoms are (1) pain, (2) "impotence functionel," (3) swelling, (not always noted.) The arm may fall as if paralyzed and the player can not continue playing. Other cases less severe were noted by him as well as by others, but the pain came on again at the first attempt to play. This pain was localized to the external epicondyle in the region of the supinator brevis. There was exquisite pain on pressure of the examining finger. There was no constant swelling in his case, and the skin was always intact. Passive movements of the forearm were not painful. Causing the supinator brevis to act immediately produced great pain. The movements of the elbow joint in flexion and extension were perfect; and gave no pain. Clado does not think that the external lateral ligament and synovial membrane can enter into the trouble from the nature of the symptoms; but the rupture and tears of the supinator brevis muscle account for all the symptoms. He admits that there is not enough swelling for total rupture of the muscle to have occurred. He never found a hernia of the muscle and ecchymosis was noted only once. To give a stroke which causes tennis-elbow, Clado says, the arm is transformed into a rigid lever, nearly horizontal, the elbow slightly flexed, the forearm and hand being midway between pronation and supination, the radial border directed upward, the racket prolonging this lever. He thinks the slight flexion of the elbow is maintained in this position by balance between the flexors and extensors; and the short supinator enters alone into action against the strong pronators and alone maintains the arm in equilibrium against its antagonizing muscles. He says that, in America, the expert players have a different style of game and that the muscles of the abdominal wall are torn and that one does not see tennis-arm in America. This, we know, is not so, if tennis-elbow and tennis-arm are used synonymously.

CONSIDERATION OF PERSONAL CASES.

I have had opportunity to study three cases of tennis-elbow, all in athletic men. None of them ever had had any previous trouble with his elbow.

CASE 1. On Oct. 16, 1913, while riding in an automobile, the right elbow was struck by a jolting of the car, but did not give any trouble until a week later, when, after playing lawn tennis, it felt somewhat stiff. On the following day, after half an hour's hard play, a sharp pain was felt in the outer side of the elbow and forearm on making back hand strokes, which require a fixed position of the arm half way between pronation and supination, and almost complete inability to make such strokes. At the same time, forehand strokes, requiring simple flexion only, were made with very little discomfort. On examination, an exquisitely painful point was found on the epicondyle. Otherwise the joint seemed normal.

Heat and rest seemed to make little change in the condition. The arm felt weak at times, especially after grasping any object firmly and lifting it or in putting on a coat. Disability has continued for three months and at present the patient is still unable to use the arm for exercise. Examination shows no atrophy; the radius rotates perfectly; no thickening is detected over the epicondyle. There is still marked pain on pressure over the epicondyle; the x-ray shows no gross bony abnormality. There is a question of a very slight thickening of the periosteum over the epicondyle. The radiograph, though fairly good, was not perfect enough to make this diagnosis positively.

CASE 2. Vigorous athletic man, seven years ago, after constantly playing tennis, noted gradually increasing pain in the right epicondyle. There was local tenderness in the spot complained of by all these patients. There was six month's disability. Examination seven years after this time, still showed tenderness over the epicondyle but no other abnormality. This patient was much inconvenienced by the trouble and played at squash rackets with his left hand at this time for six months. The x-ray in this case showed two little spicules of bone torn off presumably from the inner posterior surface of the condyle or epicondyle. An x-ray of the left arm, which had been used constantly at the time of disability, showed also a small spicule of bone apparently torn off from the internal condyle.

CASE 3. Athletic man, played squash rackets, tennis and golf. While playing golf, July, 1913, the patient noticed immediate pain in the right elbow just after a stroke. Patient was left-handed. The pain was not severe enough to make the patient drop his club, but there was a distinct sensation of something tearing in the neighborhood of the external epicondyle of the right arm. The injury was not severe enough to cause the patient to stop play that summer. An exquisitely painful spot

appeared over the external epicondyle. Flexion and extension of the fingers caused marked pain in this spot. There was considerable pain and disability for six months and the arm is not well at the present time of writing, January, 1914. There is aching at times over the region of the external condyle; considerable discomfort when carrying a bag or putting on a coat is experienced. Flexion and extension of the forearm is performed fully; but forced extension causes considerable pain in the region of the external epicondyle. An x-ray of this case showed what seemed to be a small spicule of bone in the neighborhood of the joint surface between the ulna and the humerus.

TREATMENT.

Patients with this trouble are naturally most interested in what steps can be taken to cut short their disability, and it must be admitted that treatment of the condition is very unsatisfactory. Most authors who have written on this subject agree that heat and fixation seem to be the best methods with massage as a supplementary measure. It is an affection which seems to be particularly stubborn and often takes its own time to get well in spite of any treatment; six months of disability or at least of foregoing the chosen exercise must be looked for in most cases.

CONCLUSIONS.

It would seem from a study of the trouble based on those cases in the literature and of the personal ones that there might be perfectly well two lesions causing the symptom complex known as tennis-elbow or epicondylitis.

First, a partial tearing of some of the muscular attachments from the external epicondyle, giving rise to the separation of the bony spicules as in Cases 2 and 3, with the possibility of a periostitis from such tearing, which need not necessarily be marked enough to show in a radiograph.

Second: Injury to the radio-humeral joint capsule from antagonistic muscular contraction of the supinator brevis and supinator longus, as believed by Preiser. It does not seem as if Preiser's theory of predisposition to arthritis deformans of the radial head could be accepted in all cases.

I thank Dr. W. E. Faulkner and Dr. John W. Cummin for valuable suggestions in the preparation of this paper.

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Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY IN CONJUNCTION WITH THE BOSTON MEDICAL LIBRARY.

Meeting of the Medical Section, December 17, 1913.

Lesley H. Spooner, M.D., Secretary.

Dr. Lesley H. Spooner and Dr. James B. Ayer read papers on,

RECENT ADVANCES IN THE TREATMENT OF SYPHILITIC DISEASE OF THE NERVOUS SYSTEM.*

DISCUSSION.

Dr. G. O. Sanborn: As discussion of these excellent papers, my own experience in the use of Swift's intradural method may be of interest. At the Boston City Hospital and in private practice, I have given 92 intradural injections of salvarsanized serum to 31 cases of syphilis of the central nervous system during the last eleven months.

The final test of efficiency of antisyphilitic treatment is the permanent disappearance of a positive Wassermann reaction. In syphilis of the central nervous system, pleocytosin, and globulin, both of them signs of syphilitic irritation, also must give way to normal conditions. It has been shown tonight that repeated doses of salvarsan intravenously produce improvement in these objective signs of syphilis of the nervous system. Nevertheless, this method, alone, has seemed to be inadequate and the reason appears to be that the blood borne salvarsan does not reach the spinal fluid or the chronic, walled off lesions in relation to it, in sufficient concentration to be spirochaeticidal. Swift's method is calculated to supply this need, in that salvarsan charged serum is injected within the dura and thus directly fortifies the spinal fluid. He showed that the serum injected is spirochaeticidal; that immediate improvement in pathologic conditions of the spinal fluid is due to the serum injected and not in great measure due to the salvarsan given intravenously; that clinical improvement accompanies serologic changes; that improvement may be lasting. The conception and development of this method is a notable scientific achievement.

I have studied the effect of this method in producing changes in the pathologic conditions of the spinal fluid in tabes, paresis, and in some other types of chronic nerve syphilis. The clinical course of these cases has been followed closely by Dr. Coriat. I will mention only these cases in which the diagnosis is clear clinically, and whose spinal fluids gave consistent abnormal findings, pleocytosis, positive globulin and positive Wassermann tests.

The technic is essentially that demonstrated to me by Dr. Swift at the Rockefeller Hospital, in November, 1912. In these cases, maximum doses of neo-salvarsan have been used. In one case having

* See pp. 441 and 452.

had 8 doses, the interval between was 8 to 10 days; in others the interval has been two or three weeks to three months. All have received treatment in a hospital, and have remained in bed at least 24 hours. There have been no deaths and no serious results of any kind. The reaction during the 24 hours after injection, in the tabetics, has consisted of pain, sometimes severe. Slight temperature also has occurred in a few cases.

The tabetics have received from 2 to 6 injections of serum. In none of these has a positive Wassermann become negative (1 c.c. of spinal fluid used). Positive globulin has become negative in two cases. The cell count has been affected strikingly by treatment. The average cell count in 11 cases before treatment, was 56. In the same cases, two weeks to two months later, with no intervening treatment, the cell count was 18, a diminution of 70% from one combined treatment. Ten of these cases, after 3 to 5 serum injections, each, gave a final average cell count of 9. The average of the total drop in cell count was 84%. Clinical improvement has been noted in all cases, as follows: general condition; gain of weight; all but two, less ataxic; pains ceased save in three cases, and in the latter are no longer severe; three had lost control of bladder sphincter, and have regained it. In three undoubted cases of paresis, cell counts of 100, 60 and 40, respectively, have dropped to normal, after 4 to 6 intradural injections. There has been definite and maintained clinical improvement in all. It is my intention to continue treatment of this group of cases until normal spinal fluids have been attained, or until I am convinced that this is impossible.

DR. A. MYERSON: My experience with Swift-Ellis treatment has been mostly limited to its use in general paresis. I have had two cases of cerebral spinal syphilis, both of which did very well treated by salvarsanized serum. I have treated eight cases of paresis for periods varying from three to seven months. Injections were given every two weeks in the majority of cases and the procedure was essentially as that advised by Swift-Ellis. As the results have been tabulated elsewhere (BOSTON MEDICAL AND SURGICAL JOURNAL), I shall not trouble you with a detailed report. Suffice to say that the most striking change was in the biological reactions. In the majority of cases, the Wassermann reaction was for at least a short time, negative in blood or spinal fluid, or both. The cellular count diminished and the globulin reaction became less intense. In none of the cases was this a permanent result, although in some, the biological improvement lasted for months. One case died, one other became markedly worse, these changes being in no wise related to the treatment since the patients were not selected from any stage of the disease. Clinically, change for better was not so obvious as serologically. One man had a complete remission, but as he was on the road to this before treatment commenced, credit cannot be taken by the treatment for this. Three of the patients remained stationary, two of the cases made some clinical improvement.

As for the rationale of the treatment, I believe that the change is based on a fallacy which does not affect its use and value in cerebral syphilis and tabes, but which in a case of paresis is fatal to the success of the treatment. The treatment presupposes a local effect of the salvarsanized serum, but I wish to point out that the cerebral spinal fluid does not reach the lesions of paresis except those in the meninges. The cerebral spinal fluid is not a route on the way *towards* the nervous system, it is a route on the way *from* the nervous system. It is not an *afferent* current, it is an *efferent* current. That is to say, no matter where it is manufactured, whether in the choroid plexus or by the blood vessels, whether it is transudate, exudate, dialyzed fluid or true secretion it does not enter into intimate relations with the nerve cells, nor does any fluid injected into it reach the nerve cell or touch the paper tissues of the nervous system. The lesion of general paresis is essentially arterial, chronic inflammatory and degenerate, and the bulk of the change takes place away from the influence of the cerebral spinal fluid; moreover, the spirochaetes have not been found superficially, but deep in the tissues of the brain, so that there seems to be no rational basis for the belief that the Swift-Ellis treatment, which has for its new feature the use of salvarsanized serum, will cure paresis.

Moreover paresis is a disease essentially characterized by remission. This is true of the biology of syphilis in general, and the state hospitals can present numerous cases where individuals have enjoyed such remissions from the effects of paresis as to enable them to go home, in some cases for long periods of time; further, no one knows the biological variations in paresis because no one has performed repeated lumbar punctures and serological examinations up to the time this treatment may be necessary.

In two of my cases, the Wassermann was negative the first examination, but positive at a later one without treatment and without any change in the clinical symptoms, and the reverse has been true in one case.

Reliance upon the cell counts as a quantitative measure is based, it seems to me, upon the belief that the counting chamber method can be accurate. I do not believe that such is the case. I believe the range of error to be as much as ten or fifteen cells per cubic millimeter in any case where there is a distinct cell increase. The most that one can really say in any case is that there is a small cell increase, a large cell increase, or very large increase, and approximate the figures rather than give them with a pretence of exactness.

Dr. Ayer has well called our attention to the fact that there is a preparetic stage, in which treatment is hopeful. With this I cordially agree and, moreover, I believe that this is a recognizable stage. In the period before the outbreak of paresis, there are symptoms. In this connection I want to call your attention to a paper by Dr. Wm. W. Graves of St. Louis which appeared on August, 1912, in the *New York Medical Report*. The title of this paper was "Syphilitic Syndrome," and Graves here points out that the chronic or latent syphilitic has physical signs of a nature to have a diagnosis made. These are pigmentation, pallor, small changes in the pupils, small changes in the reflexes, such as the dropping out of one or the other of the skin reflexes, exaggeration, inequality and arterio changes. To this I wish to add that on the laboratory side we can obtain evidence. First, the Wassermann reaction of the blood on repeated examination; second, the chemical changes in the spinal fluid, and especially of the increase in albumen, which I believe occurs before globulin reaction or the increased cell count of the Wassermann reaction. Taken at this stage, I feel we could cope, perhaps successfully,

with the disease, and perhaps by the Swift-Ellis method; but at the present time, and in the average paretic, treatment by this method influences the course of disease but does not stay it.

Dr. Isador H. Coriat: Dr. Sanborn and I have been closely associated in this combined neurological and serological work, and we have treated in all about 30 cases by the intraspinous method. The types of syphilitic diseases of the central nervous system which have come under treatment have been combined system disease of the spinal cord, specific meningo myelitis, cerebral syphilis, cerebrospinal syphilis, dementia paralytica, tabes and juvenile paresis. No bad results have followed the treatment. In nearly all cases there was serological improvement even if the cases showed no changes clinically. The clinical improvement could be grouped under two headings, viz:—improvement in the subjective complaints and improvements in the objective signs of the disease. As would naturally be the case, the subjective improvement was always more marked than the objective, although the latter was noted to a certain extent in a few cases. Varying according to the diagnosis, the subjective improvement was as follows: In tabes, a lessening of the lightening pains and of the gastric crises and an improvement in general strength; in cerebral syphilis, a diminution of the headache and even in some cases a complete freedom from headache; in spinal syphilis, increased strength in the legs and in paresis, some improvement in the mental condition. Of course in this latter disease, the question of fluctuation in the disease process and of remissions must be considered. Objective improvement has likewise been noted in a few cases, but in these cases only certain isolated objective signs have improved. In specific meningo myelitis, the gait has improved; in tabes, improvement of the urinary incontinence, of gait and ataxia, and improvement in certain reflexes, such as the light reaction of the pupils. In one case the knee jerks became brisk, whereas formerly they were only obtained on reinforcement. The significance of these changes in the reflexes, it is impossible to determine at present. The clinical improvement usually ran parallel with the serological improvement, although we have noted serological relapses without clinical relapses, and vice versa. The problem of treatment of syphilis of the nervous system is the problem of accessibility of the spirochetae. In specific endarteritis, of course, beneficial results are to be expected from intravenous injections of salvarsan. But in the meningeal forms, in paresis, tabes and system diseases where the causative agent lies at a distance from the blood vessels in the perivascular and perineuronal spaces, the best results are to be obtained by the intraspinous method of treatment, thus bringing both the drug and the syphilitic anti-bodies into direct communication with spirochetae. Since the cerebrospinal fluid does not come from the blood current, but is a true secretion from the choroid plexus and the direction of flow is from the fluid to the blood, it follows that the best treatment for syphilis of the nervous system is by introduction of the causative agent directly into the cerbrospinal fluid.

Dr. J. C. Walker: I am in sympathy with the remarks made by Dr. Coriat in regard to the cell count in the spinal fluid, and I do not agree with what I understood Doctor Myerson to state, namely, that the cell count in the spinal fluid varies from day to day, and is not to be depended on as an index of active disease of the meninges. At the Peter Bent Brigham Hospital we perform lumbar puncture on every case of syphilis and in forty or fifty cases in various stages, excepting cases of central nervous system syphilis, the highest spinal fluid cell count has been four, usually two and often none or one.

In regard to the Wassermann reaction, I believe that when done by an intelligent person who understands the reaction, and when conscientiously and carefully controlled, it is more than a symptom, and it is indispensable in the diagnosis of syphilis.

It is too late in the evening to enumerate the cases of syphilis which we have treated intraspinally, but our results agree with those of Doctors Ayer, Sanborn, and others, and I feel that this new method introduced by Swift and Ellis, is of great value as a treatment, especially in cerebro-spinal syphilis and of help in tabes. I would like to mention one case of cerebral syphilis with primary optic atrophy, which was given four intraspinal treatments alone without intravenous salvarsan treatments. This salvarsanized serum introduced into the spinal canal had no injurious effects upon the optic nerve, in fact before treatment there was a steady gradual decline in his sight. Since the treatment, although the patient thinks it has improved his sight very slightly, his sight surely has gotten no worse, and the decrease of the spinal cell count from forty-three to seven indicates improvement. A second case of tabes got no improvement from six salvarsan treatments alone, but four intravenous salvarsan and intraspinal treatments relieved his incontinence of urine, and whereas previously the patient had to get up four or five times at night to urinate, now he has to get up only once. In this case the pains in the lower extremities have disappeared, the gait has improved so much that the patient walks much daily for exercise, and the cell count has dropped from forty-four to two.

Book Reviews.

The Midwife in England. Being a Study of the Working of the English Midwives Act of 1902. By Caroline Conant Van Blarcom, executive secretary. New York: Committee for the Prevention of Blindness (No. 13). December, 1913.

This very readable pamphlet begins with an enthusiastic introduction by Prof. Edgar, who endorses all that the author has written. The aim of the writer is evidently to convince the general public of the necessity of the trained, licensed, and regulated midwife in America, basing her arguments on the success of the operation of the English Midwives Act of 1902. She was in England only six weeks observing midwives in the making at their recitations, lectures, and examinations; she followed the midwife on her rounds in practice, and she followed the inspectors in their work of checking up. She gives an accurate account of the history of the midwife in England down to the passage of the Midwives' Bill of 1902, and also a minute description of this bill and its operative machinery. The work concludes with four exhaustive appendices, making it a valuable book of reference.

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THE HARVARD MEDICAL SCHOOL OF CHINA.

A CIRCULAR letter of information and appeal (reprinted in another column of this issue of the JOURNAL) has recently been sent by Dr. Martin R. Edwards to all graduates of the Harvard Medical School relative to the present status and needs of the Harvard Medical School of China. This school was founded at Shanghai in 1909 and inaugurated two years later.



THE HARVARD MEDICAL SCHOOL OF CHINA.

"The inauguration of the Harvard Medical School of China occurred precisely at the moment of the outbreak of the Revolution of 1911; but this, instead of hindering the development of the School, worked to its advantage. Along with the remarkable readjustment of government, there was a widespread awakening on the part of the Chinese to the necessity of a hygienic regeneration, if China is to take her rightful place among the nations. This realization, however, had really begun during the fight against the recent outbreak of pneumonic plague in Manchuria, which marked a new era in medicine throughout China's four hundred millions of people.

"The point of location, at Shanghai, offers exceptional opportunities for extended researches into the diseases of the Orient and the tropics. This is of importance to us due to the rapidly increasing intercourse, commercial and otherwise, of the United States with the peoples of the Orient and tropical countries. The approaching opening of the Panama Canal emphasizes this need.

"The course of study at the Harvard Medical School of China covers a five-year period, the teaching all being done in English. Although the school is primarily for Chinese, it is open to all who meet the entrance requirements. It is the aim of the school to give a high class of instruction to a limited number of well-qualified students who give promise of becoming leaders in China's medical advance, rather than to turn out large numbers of moderately trained doctors.

"The above buildings are furnished to the Harvard Medical School, free of rent, by the Chinese Red Cross Society. The larger building now provides facilities for the hospital, the lecture and laboratory rooms for instruction purposes, and the laboratories for research. The whole of this building, however, is needed for purposes of instruction and research, and will be so used upon the completion of the much-needed new hospital. The smaller building is used as a dormitory. The grounds afford ample space for tennis and other sports enjoyed by the students.

"The purchase of a tract of land near the school building on which to erect the new hospital is of vital importance. The money for the hospital building has already been promised. The carrying on of satisfactory instruction work for the students further demands the immediate establishment of an out-patient department in the heart of the city.

"The school has before it exceptional opportunities for usefulness; and, in the words of President Eliot, 'is one of undoubted worthiness and sure fruitfulness.'"

The need for trained physicians in China is great. The country has a population of 400,000,000, with only 650 doctors having a knowledge of modern scientific medicine. At this rate there would be but one physician in Boston and three in Chicago. Yet physicians are needed in China, for there is a large amount of endemic and epidemic disease.

"The Harvard Medical School of China aims to meet this need, to train carefully selected Chinese students of medicine, so that they later may

become the teachers, in native institutions, where the vast number of Chinese practitioners needed may receive their training. The aim is to help the Chinese to solve their own medical problem."

There is also a great need for hospitals in China. There are at present 250 hospitals averaging 30 beds each in that country. At this rate, Boston would have one hospital of 12 beds and New York one of 90 beds. The Harvard Medical School Hospital, soon to be built at Shanghai, is not solely an attempt to contribute towards meeting this need, but a means for providing more adequate opportunity for clinical instruction under favorable conditions.

The need of this hospital, both from the humanitarian and from the educational standpoint, is obvious. It is earnestly to be hoped that not only graduates of the Harvard Medical School, but physicians and patrons of medicine generally, may generously give the means to make possible this enlargement of the work and service of the institution in the Orient.

THE MIDWIFE IN ENGLAND AND IN AMERICA.

In another column of this issue of the Journal is published a review of a pamphlet which has recently come to hand. Its title is "The Midwife in England"; its object is the midwife in and for America. It is important to consider briefly the motive behind these written pages.

Miss Van Blarcom, the secretary of the Committee for the Prevention of Blindness, is a well-trained obstetric nurse; no one could be more familiar with this side of obstetric work than she. She was sent to England to investigate the midwife situation in that country; her time for study was but six weeks. There can be no doubt that she did her work thoroughly and well. She became in spirit an English midwife and writes with the loyalty of a proselyte. She honestly feels that the one and only solution of the obstetrical situation in America is some such system as England has adopted. She considers no alternative and bravely sweeps away all the barriers. We cannot but admire her enthusiasm and pardon her inconsistencies; but it is hard to see how obstetricians of wide training and influence can advocate her plans for America.

In the first place, the English system is far from being the unqualified success she would have us believe. In a lecture on "Ante-Natal Hygiene," by Dr. Armand Routh, consulting obstetric physician to Charing Cross Hospital, given on behalf of the National Association for the Prevention of Infant Mortality on January 13, 1914, one of the first principles advocated is for "arrangements by which every poor woman shall have medical supervision during pregnancy." In this long and exhaustive paper there is no mention made of even the most highly trained midwife as a factor in his plans for obstetric care of the poor; it is always the medical practitioner who is to give the service. The obstetricians in England know that the system they originally advocated, when they backed the Midwife Bill, is wrong, and that it cannot furnish adequate care for the poor of England in their obstetric experiences.

The crying need in America is not for trained midwives, but for higher standards of obstetric teaching in our medical schools and for the widespread introduction of obstetric dispensaries. A recent newspaper article written, not by a superficial reformer, nor by a biased obstetric specialist, but by a public health expert, Dr. W. A. Evans, of Chicago, concludes:

"It does no good to abuse midwives or poor doctors or poor nurses. It does no good to try to legislate midwives into trained women, or, following the other trend, to legislate them out of existence. The latter plan has not succeeded anywhere in this country, and the former plan has not succeeded anywhere in Europe. The reason is plain to anyone who gives it thought. I will not develop it.

"No plan ever will succeed except one of substitution. The thing substituted must not only save the eyes and the lives, but it must conform to other requirements.

"The lying-in hospital, dispensary, and mothers' aid movement constitute the best substitute to date. As a preventive of blindness, it is perfect. As a saver of lives of mothers and babies, it is almost perfect."

MEDICAL LEGISLATION. STATE REGISTRATION IN MEDICINE.

On Thursday, March 5, a hearing was held at the State House before the committee on public health relative to the proposed bill providing for the registration of physicians in this Commonwealth. The principal contention was made by the Christian Scientists. The proposed

bill contains ten sections, the ninth of which read originally as follows:

"Nothing in this act shall be held to restrict the practice of Christian Scientists, so called, who are communicants in good and regular standing in any Christian Science church in this Commonwealth, or to registered pharmacists or registered dentists, or to clairvoyants, or to persons practising hypnotism, mind cure or massage, provided they do not violate any of the preceding provisions of this act."

To the last clause of this paragraph the Christian Scientists objected, claiming that it in effect nullified all the rest of the section. After some conference between their representatives and those of the State Board of Registration in Medicine, the latter agreed to substitute for this section the following:

"Nothing in this act shall be held to apply to registered pharmacists, registered dentists, or registered optometrists, or to restrain the practice of clairvoyance, hypnotism or mind cure, or to apply to any person who ministers to or treats the sick or suffering by mental or spiritual means without the use of drugs or material remedy."

Upon this compromise, the Scientists withdrew their objections, and the latter section was therefore substituted as an amendment to the bill.

The last section of the bill is also of importance as defining the practise of medicine.

"Section 10. The word medicine, as used in this act, shall be regarded as referring only to that branch of science which relates to the prevention, cure or alleviation of the diseases of the human body, and any person shall be regarded as practising medicine within the meaning of section 8 of this chapter who shall publicly assume or advertise any title or designation which shall show or tend to show that the person publicly assuming or advertising the same is a practitioner of medicine in one or more of its branches; or who shall investigate or diagnosticate physical ailments, defects or conditions of any person, with a view to treat or modify the same, or does treat or modify the same, by use of instruments or external appliances or manipulations, or by the application or administration of any remedial agent or substance for either internal or external effect, except in so far as the provisions of this section do not conflict with the provisions of exemption in section nine."

Hitherto there has been no statutory definition of the practise of medicine, and the term has been variously interpreted by different judges. This new definition, it is said, will be of value to the courts as an aid in the adjudication of certain medical cases.

MEDICAL EXAMINERS FOR GREATER NEW YORK.

THE bill recently introduced into the New York Legislature abolishing the office of coroner in New York City and substituting for it that of medical examiner is a reform measure deserving of a most widespread interest. It is now nearly forty years since the General Court of Massachusetts without a dissenting voice voted to abolish the coroner system and to substitute for it the method of medico-legal inquiry at present operative in this Commonwealth.

The office of coroner, an ancient English institution, in these days is an anachronism. Notwithstanding this fact, in but a few states of the Union has it been replaced by other systems of medico-legal inquiry. Massachusetts, the pioneer, has been followed by Rhode Island, and in a measure by Connecticut, New Hampshire and Maine. New York now seeks to follow suit, and in so far as the City of Greater New York is concerned to rid herself of the antiquated, cumbersome and in a measure corrupt method of inquiry which up to the present time has persisted in spite of all effort to abolish it.

The people of Massachusetts may well take pride in the fact that the promoters of the New York bill before drafting the measure made careful inquiry into the Massachusetts medical examiner system and its workings as exemplified in Suffolk County, where conditions are favorable to its most effective operation.

The friends of the bill include organizations representing a wide variety of interests united in vigorous effort to secure its passage. Should the bill become a law, New York will set a powerful example in the direction of a reform, the need of which in this country is universally conceded.

MEDICAL NOTES.

SYNTHETIC MILK.—A press report from London on March 17 announces the discovery there of a method of making synthetic milk from the soya bean.

A CENTENARIAN COUNTESS.—Elizabeth Ruth, Countess of Devon, who died at Cheltenham, England, on March 17, is said to have been born on March 12, 1814. She was widow of the tenth Earl of Devon.

The Plague in Java.—The total number of cases of bubonic plague notified in East Java during the calendar year 1913, was 11,218, with 10,556 fatalities.

Mississippi Valley Medical Society.—The twenty-sixth semi-annual meeting of the Mississippi Valley Medical Society was held at Lincoln, Neb., on March 26 and 27.

Insanity in Wars.—During the Franco-Prussian War, the percentage of insanity among troops engaged was 0.73 per 1000. During the British South African War it was 2.5; in the Russo-Japanese War 2., and in the recent Balkan War only 0.35.

A Long Retained Lithopedion.—In the issue of the Journal for Jan. 15 we quoted a case of a lithopedion retained in the abdomen for 42 years and during four succeeding pregnancies. In a letter published in the issue of the *Lancet* for Feb. 28, Dr. W. S. Lamb notes that there is in the Army Medical Museum, at Washington, D. C., a lithopedion removed at autopsy, which was retained in the abdomen 55 years and during five succeeding pregnancies.

BOSTON AND NEW ENGLAND.

New Evening Clinic at the Dispensary.—On March 16 a new evening genito-urinary clinic was opened at the Boston Dispensary. This clinic will be held on Monday, Wednesday, and Friday, at 7.30 p.m., and a fee of 50 cents will be required of each patient. The clinic will be in charge of Dr. Arthur H. Crosbie and Dr. Augustus Riley.

Scarlet Fever at Bridgewater.—It is announced by the local board of health that the epidemic of scarlet fever, recently prevalent in Bridgewater, Mass., is now abating. On March 13, there remained only 32 cases of the disease under treatment.

Hospital Bequests.—The will of the late Francis J. Cotting, of Boston, which was filed on March 18, contains bequests of $10,000 to the Children's Hospital, Boston, and $75,000 to the Industrial School for Crippled and Deformed Children.

By the death, on March 15, of Mrs. Abram H. Cushman, of Peabody, Mass., a trust fund of $40,000, of which she enjoyed the income, under the will of the late J. B. Thomas, now reverts to the J. B. Thomas Hospital.

The will of the late Laura Wolcott Lowndes, of Washington, D. C., which was filed in that city on March 14, contains a bequest of $10,000 to Harvard College to provide free beds for needy students in the Stillman Infirmary.

The will of the late Dr. Thomas Morgan Rotch, of Boston, after providing for the endowment of a professorship of pediatrics in the Harvard Medical School, makes the Infants' Hospital his sole ultimate reversionary legatee.

The will of the late Martha B. Webb, of Brookline, Mass., which was filed last week at the Norfolk probate court in Dedham, Mass., contains a provisional residuary bequest to the Beverly, (Mass.) Hospital.

Infectious Diseases.—Cases of Infectious diseases reported to the Boston Board of Health for the week ending March 17, 1914: Diphtheria, 59, of which 5 were non-residents; scarlatina, 144, of which 11 were non-residents; typhoid fever, 3; measles, 57, of which 1 was non-resident; tuberculosis, 42, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 16.32.

NEW YORK.

Abolition of Coroner's Office.—On March 11 the Assembly Committee on Cities gave a hearing at Albany on the Brennan bill abolishing the office of coroner in New York City. Under this bill the bulk of the work now done by the coroners would be taken over by a chief medical examiner appointed by the mayor and a number of deputies appointed by the chief examiner, while the rest of the work would be performed by the city magistrates. Dr. George B. Magrath, medical examiner in Boston, explained the economical and satisfactory working of the medical examiner system in Massachusetts, and among those who appeared in favor of the bill were Dr. A. Jacobi and Prof. James Ewing of Cornell University Medical College.

Hospital Bequest.—By the will of the late Mrs. Elizabeth N. Andreas of Brooklyn, N. Y., $4,000 each is left to the Stony Wold Sanatorium for Incipient Tuberculosis, in the Adirondacks, St. Rose's Free Home for Incurable Cancer, New York, and the Seaside Home of the Brooklyn Children's Aid Society.

Manhattan State Hospital.—After several years of negotiations, an agreement has been

approved by the state and the city of New York giving to the state a lease of Ward's Island for fifty years for the Manhattan State Hospital for the Insane and transferring to the state the property in Brooklyn occupied by the Long Island State Hospital. The transactions were made possible through the enactment of two bills by the Legislature last year, upon the recommendation of the attorney general and the State Hospital Commission. The Manhattan hospital has been located for many years on Ward's Island without definite legal right, and during its occupancy the state has expended some $1,238,500 for improvement and repairs of existing buildings and the erection of new buildings.

NEW STATE HOSPITALS.—Among the recommendations in the annual report of the State Board of Charities is the establishment of two new institutions for the delinquent feebleminded, one for each sex, with observation stations in New York, Buffalo and other cities. Another recommendation is the establishment of at least three state hospitals for incipient tuberculosis, similar to the one at Raybrook, in the Adirondacks, together with increased hospital provision for the care of advanced cases of the disease.

REËNACTMENT OF WORKMEN'S COMPENSATION.—The constitutionality of the workmen's compensation act passed in December last having been questioned, the present legislature, at the request of Governor Glynn, reënacted it, with slight changes, and on March 16 the governor signed the bill and appointed four of the five commissioners whose function it is to administer the law. One of these is Dr. Thomas Darlington, the former head of the New York City Health Department.

TRUTH AND ANTI-VIVISECTIONISTS.—The general public has long realized that many of the charges made by anti-vivisectionists against the medical profession are utterly silly. How much credence can be placed in their recent charges that children treated in hospitals of this city were inoculated with "loathsome diseases," even though such charges are apparently fully supported by a statement giving names and addresses of the children alleged to have been so infected, is well shown in some correspondence which Commissioner Goldwater has recently had with Dr. William H. Maxwell, City Superintendent of Schools. Not only were the children found not to be suffering from the "loathsome diseases," but it was also shown that there was absolutely no experimental work with such diseases carried on in any of these hospitals of the Department of Health.

The charge was also made that many of the children attending the public schools in the Bronx were suffering from venereal diseases and it was plainly intimated that these were due to experimentation and infection in city hospitals. In particular, B. S. Deutsch addressed a letter to the District Attorney of Bronx County, stating that forty-eight children residing in Bronx County, many of whom were now attending the public schools, were suffering from a very grave venereal disease, namely, syphilis. Mr. Deutsch's statement goes on to say that the alleged infections of these children were the result of "inoculation which occurs without the consent of either the children or their parents, or else as the result of gross negligence or carelessness within the hospitals."

Commissioner Goldwater's investigators visited forty families named in the Deutsch list. Of this number, fifteen could not be found at the given addresses. Interviews were obtained with twenty-five families in which there were thirty-four children. Among these, not a single case of syphilis or of suspected syphilis was found. There was no evidence of the inoculation of any of those children with serum or vaccine.

RESTRICTION OF CORROSIVE SUBLIMATE SALES.—Report from Albany states that on March 5 the Senate committee reported favorably the Blauvelt bill, which restricts the sale of corrosive sublimate tablets by providing that they shall be colored green, placed in a bottle of distinctive shape, and dispensed only on a physician's prescription.

ANOTHER CASE OF TYPHUS FEVER.—On March 9 a case of typhus fever was discovered aboard the French steamer *La Savoie*, which reached this port on the previous day from Havre. All her steerage passengers were detained at the quarantine station.

MENINGITIS FROM GREECE.—A number of cases of cerebro-spinal meningitis have recently been discovered among immigrants from Greece, and

among Greek soldiers returning to this city after serving in the Balkan War. The disease is endemic in Greece, and there is probably a considerable risk of its introduction as an epidemic into this country. The vigilance of quarantine officials should be doubly strict at this time to prevent such a catastrophe.

City Health Department.—The officials of the City Health Department have expressed themselves as much gratified by the cordial support promised the department by the present municipal administration at a recent meeting arranged by the Charity Organization to celebrate the 31st anniversary. Three of the speakers on that occasion were Mayor Mitchel, Comptroller Prendergast, and Mr. McAneny, president of the board of aldermen, and looking to the commissioner of health to bring the machinery of his department to the highest degree of efficiency, they pledged themselves to give the heartiest support in their power to all efforts to improve the health and welfare of the community. Some of the activities commended by them were: Health centres, organized public health education, improvement in hospital and dispensary conditions, better supervision of foods, broadening of the work of the infant milk stations, and better supervision of and increased accommodations for the care of the tuberculous.

Treatment of Venereal Diseases.—The Health Department believes that Wassermann tests should be made upon all cases of syphilis, that there should be facilities for making microscopical examination for treponema, and that complement fixation tests and microscopical examinations for gonococci should be made in all cases of gonorrheal infection prior to discharging the patient. It has published a list of college, hospital and dispensary clinics which have taken special pains to come up to this standard, and expresses the hope that the example set by these will soon be followed by other clinics, and that in the near future the clinic treatment of the venereal diseases will be on a thoroughly scientific and satisfactory basis.

Medical Economic Leagues.—The Federation of Medical Economic Leagues, the object of which is the furtherance of the economic interests of the profession, and in which there are now seven organizations, with a membership of 2800, was incorporated at Albany on March 6. The president is Dr. Thomas Dixon of Brooklyn, and among the other incorporators and directors are Drs. A. C. Geyser and Oscar Potter of the Borough of Manhattan and Drs. M. L. Volk and Samuel Gitlow of the Borough of the Bronx. The chief aim of the central organization at this time is stated to be to induce the Legislature to prohibit hospitals and dispensaries from exacting fees from charity patients.

Award of Nicolls Medal.—On March 6 the Chemists' Club of New York presented the Williams H. Nicolls medal to Dr. M. Gomberg, professor of organic chemistry in the University of Michigan awarded for his researches in triphenylmethyl. On the same occasion friends of the late Dr. Morris Loeb presented to the club a bronze bust of Professor Loeb.

Current Literature

Medical Record.

March 7, 1914.

1. Case, J. T. *X-ray Observations on Colonic Peristalsis and Antiperistalsis with Special Reference to the Ileocolic Valve.*
2. Abbe, R. *A Simple Subcutaneous Cut to Cure "Trigger Finger" or "Snap Finger."*
3. Bassler, A. *A Cause of Peritoneal "Adhesions in a New Bacillus; the Bacillus Adhaesiformis.*
4. Wilensky, A. O. *Fracture of the Os Calcis.*
5. Einhorn, M. *An Appliance for the Introduction of Instruments into the Stomach.*
6. Kellogg, J. H. *The First Observed Cases of Friedreich's Ataxia in America.*
7. Weiss, R. *Quantitative Calorimetric Analysis in Aid of Clinical Diagnosis.*
8. Rueck, G. A. *Pathology, Etiology and Diagnosis of Typhoid Fever.*

New York Medical Journal.

March 7, 1914.

1. Smith, A. J. *Erosion of Tissues by Aneurysms.*
2. *Trimble, W. B. *Lingual Tuberculosis—Primary.*
3. May, C. H. *Soap and Water and Opticians.*
4. Cornwall, E. E. *Low Blood-Pressure.*
5. Willson, R. N. *Food Toxemia or American Gout.*
6. Diner, J. *Serum Diagnosis.*
7. Moss, M. I. *Heredity in Exophthalmic Goitre.*
8. Mahr, H. W. *A Special Burette for Use in the Rideal-Walker Test.*

2. Trimble reports two cases of primary lingual tuberculosis. In any case of tongue ulceration, he says, tuberculosis must be considered. Most tuberculous ulcers of this organ are secondary. The diagnosis of this condition is very difficult, as it is impossible to demonstrate the bacilli in the ulcer and histologic examination alone is practically useless as a means of distinguishing it from syphilis.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MARCH 7, 1914.

1. KNOX, H. A. *A Scale, Based on the Work at Ellis Island, for Estimating Mental Defect.*
2. *EASTMAN, J. R. *An Anatomic and Physiologic Method of Short-Circuiting the Colon.*
3. GRIFFITH, J. D. *Progress of Orthopedic Surgery.*
4. DERCUM, F. X. *An Evaluation of the Psychogenic Factors in the Etiology of Mental Disease, Including a Review of Psychanalysis.*
5. KAHN, M. *Rupture of the Intestine, with Special Reference to Its Early Diagnosis.*
6. *KANAVEL, A. B. *Duodenal Toxemia Following Rupture of the Duodenum, with Remarks on Extraperitoneal Rupture and a Report of Two Cases.*
7. *VERHOEFF, F. H. *Ultraviolet Light as a Germicidal Agent. Experimental Investigation of Its Possible Therapeutic Value.*
8. *LIBMAN, E., AND OTTENBURY, R. *A Practical Method for Determining the Amount of Blood Passing Out During Direct Transfusion.*
9. FRANCINE, A. P. *The Underlying Factors in the Spread of Tuberculosis.*
10. HEED, C. R., AND PRICE, G. E. *Binasal Hemianopsia Occurring in the Course of Tabetic Optic Atrophy.*
11. EUSTACE, A. B., AND MCNEALY, R. W. *Case of Strangulated Tubo-Ovarian Hernia in an Infant.*
12. ZIGLER, M. *Gonorrheal Involvement of the Skin of the Prepuce Cured by Unusual Therapeusis.*
13. REED, E. N. *Idiosyncrasy to Aspirin (Acetylsalicylic Acid).*
14. POMEROY, J. L. *A New Sign in Pneumothorax, Particularly Artificial Pneumothorax.*
15. FENNELL, R. F. *Care of the Heart in Pneumonia.*
16. MCJUNKIN, F. A. *A Tube for Collecting Blood for Cultures.*
17. DAVID, V. C., AND CURTIS, A. H. *Recent Experiences with Blood Transfusion.*
18. HIRSCHFELDER, J. O. *A New Culture-Medium for the Gonococcus.*

2. Eastman suggests the anastamosis of the caput coli with the upper rectum as a new method of short-circuiting the colon and getting certain and efficient drainage.

6. Kanavel is convinced that a toxemia other than bacterial is a factor in the mortality of extraperitoneal rupture of the duodenum. He refers to the well-known work of Maury and to two illustrative cases.

7. Verhoeff proves experimentally that ultraviolet light cannot under any conditions destroy bacteria within the cornea, even when the latter is perfectly transparent, without at the same time severely injuring the corneal tissue.

8. The authors have worked out a formula which involves body weight before and after transfusion, and hemoglobin per cent., whereby the exact amount of blood transfused can be measured. They claim it is always safe to take one-fourth of the donor's blood and often safe to take a third, provided the transfusion is not done too quickly. The patient's blood-weight is estimated as one-nineteenth of the body weight. [E. H. R.]

THE ARCHIVES OF INTERNAL MEDICINE.

JANUARY, 1914.

1. *STEWART, G. N. *Studies on the Circulation in Man. The Blood-Flow in the Hands in Diseases of the Heart.*
2. *BASS, M. H., AND WESSLER, H. *A Study of the Blood-Pressure in Children Showing Orthostatic Albuminura.*
3. SATTERLEE, H. S., AND HOOKER, R. S. *Experiments to Develop a More Widely Useful Method of Blood Transfusion.*
4. *HOWELL, W. H. *The Condition of the Blood in Hemophilia, Thrombosis, and Purpura.*
5. *GEYELIN, H. R. *A Clinical Study of Amylase in the Urine, with Special Reference to the Phenolsulphonephthalein Test.*
6. SCHMIDT, H. B. *The Clinical Study of Hypercholesterinemia.*
7. *SOPER, W. E., AND GRANAT, S. *The Urea Content of the Spinal Fluid with Special Reference to Its Diagnostic and Prognostic Significance. A Series of Ninety-Seven Cases.*
8. *THOMAS, B. A., AND IVY, R. *The Gonococcus Complement Fixation Test and Analysis of Results from Its Use.*
9. PLAGGEMEYER, H. W., AND MARSHALL, E. K. *A Comparison of the Excretory Power of the Skin with That of the Kidney Through a Study of Human Sweat.*
10. EMERSON, H. *Status Lymphaticus in Adults, Its Clinical Diagnosis and Importance.*

1. Stewart reports on a clinical study of the circulation in the hands in cases of heart disease. He finds that the hand flow is more apt to be markedly deficient where there is evidence of serious impairment of the myocardium with disturbance of force and rhythm, than in cases with gross valvular lesions where the heart action is strong and steady. This is true even when in valvular disease clinical signs of broken compensation are present. In aortic insufficiency the hand flow is less easily maintained at the normal level than in mitral insufficiency. Even where there is considerable venous engorgement in cardiac cases the flow in the hands may be little if at all diminished, provided the myocardium is not impaired, and a diminution of the flow in the course of such cases is often an indication of impending myocardial failure.

2. Bass and Wessler studied the blood-pressure in children, showing orthostatic albuminuria. They found that blood pressure in these cases varied very little from that of normal children.

4. Howell reports on a clinical study of the blood in hemophilia, thrombosis and purpura. In hemophilia, he says, the blood is deficient in prothrombin, and there is a relative excess of antithrombin. The detection of a hemophilic condition of the blood is facilitated by first oxalating the blood and then recalcifying with an optimum amount of calcium. Under these conditions the coagulation time of normal plasma is very constant (9 to 12 minutes), while that of hemophilic blood is greatly delayed. In spontaneous venous thrombosis there is evidence of a diminution in the antithrombin of the blood, with normal prothrombin. In purpura no evidence was found of any variation from normal in either the antithrombin or prothrombin.

5. Geyelin reports on a clinical study of amylase (diastase) in the urine. The amount of this enzyme in the twenty-four-hour specimen of a normal individual (estimated by the Wohlgemuth starch-iodine method) varies within very narrow limits, and for a given case is almost a constant factor. In the vast majority of cases of acute or chronic nephritis the diastatic value of the urine is subnormal or totally absent. In cases with marked albuminuria it may be normal, indicating that the presence of albumin increases enzyme activity. Allowance must always be made for this factor in estimating the diastatic value in nephritic urine. As a test for renal function in nephritis, this method gives results agreeing remarkably well with those of the phenolsulphonephthalein test.

7. Soper and Granat studied the urea-content of the spinal fluid and its diagnostic and prognostic

significance. They find that a urea content higher than 0.2% indicates a severe uremia and a rapidly fatal termination. A content between 0.1% and 0.2% means a rapidly fatal termination in the majority of cases of nephritis. A content between 0.05% and 0.1% suggests severe urea retention.

8. Thomas and Ivy made a careful clinical study of the gonococcus complement-fixation test. They believe that a positive reaction is invariably reliable and always denotes the presence of a focus of gonococcic infection. The reaction is often negative in acute and subacute urethritis, especially if the inflammation is limited to the anterior urethra. In chronic posterior urethritis, in epididymitis, and in arthritis the reaction is practically always positive; in stricture about two-thirds, in chronic prostatitis about one-half of the reactions are positive. In women reactions are negative unless the infection ascends to the level of the uterus. A positive reaction is present in about 20% of patients clinically cured. [L. D. C.]

THE PRACTITIONER.

FEBRUARY, 1914.

1. *HUNTER, W. *Oral Sepsis in Relationship to "Septic Anemia."*
2. *GUTHRIE, L., ET AL. *The State Registration of Venereal Diseases.*
3. NITCH, C. A. R. *Some Important Points in the Symptoms, Diagnosis and Treatment of Haemic Infections of the Kidney.*
4. MORLEY, A. S. *Injuries of the Back.*
5. *RIVIÈRE, J. *Diabetes and Its Treatment by Means of Physical Agents.*
6. BLAKEWAY, H. *The Treatment of Harelip and Cleft Palate.*
7. THOMSON, H. C. *Recent Work on Diseases of the Nervous System.*
8. FINZI, N. S. *Recent Work on Radio-Therapeutics and Electro-Therapeutics.*
9. BUNCH, J. L. *Some Continental Methods of Treating Syphilis.*
10. BRUCE-POTTER, H. E. B. *Intravenous Injections in Blackwater Fever.*
11. LOVELL, A. G. H. *Hay-Fever.*
12. *HUSSY, J. B. *Pulmonary Tuberculosis and Its Vicious Circles.*
13. DOUGLAS, A. *Further Notes on Mental Suggestion by Transference.*

1. Hunter believes that many of the anemias are due to a septic process going on somewhere in the body, producing poisons which cause the anemia. These, and their relationship to oral sepsis, he proceeds to discuss. Much of the paper dwells upon the author's own work, and the justification and importance of this. It is picturesquely written and presents many important points in a novel way, though presenting little that was not already known. He presents his conclusions in an elaborate and overcomplex table.

2. Guthrie and six others discuss the registration of syphilis and gonorrhea. With one exception they are agreed that such registration under conditions as they now exist in England will not produce any good results.

5. Rivière urges further use of physical agents in treating diabetes. Among others he considers hydro-, mechano- and electro-therapy. These should, of course, go along with the regular dietetic regime.

12. Hussy, in an interesting paper, presents and discusses many of the problems arising in the course of pulmonary tuberculosis as vicious circles. He points out how, for instance, social misery, poor housing, etc., gives rise to tuberculosis, which in turn causes more social misery; the disease causes a cough, which in turn spreads the disease; fever makes the patient chilly so that he stays indoors, which in turn is bad for the tuberculosis and causes more fever. Likewise in regard to emaciation, hemoptysis, dyspepsia, anemia, night sweats, neurasthenia, pleurisy, cardiac failure and others he points out how a vicious circle may be formed and then discusses how it may be broken. [J. B. H.]

THE INDIAN MEDICAL GAZETTE.

FEBRUARY, 1914.

1. *ROGERS, L. *Gleanings from the Calcutta Post-Mortem records. No. VIII.*
2. HEHIR, P. *Venereal Disease in the Army of Our Indian Empire.*
3. HOSSACK, W. C. *Preliminary Note on Asino-Vaccine.*
4. BOORSMA, W. G. *The Kernels of "Canarium Commune" as an Addition to Milk in Infant Feeding.*
5. GREEN-ARMYTAGE, V. B. *The Use and Abuse of Pessaries. A Clinical Lecture.*
6. CHITALE, P. K. *Night-Blindness; Its Causes, Signs, Symptoms, and Treatment.*
7. MURISON, C. C. *How to Keep Flies Off Edible Articles for Sale.*
8. NEWMAN, E. A. R. *A Portable High Pressure Sterilizer.*
9. PANDALAI, K. G. *A Case of Salvarsan Poisoning.*
10. FINK, L. *Case of Transient Hemiplegia.*

1. In this concluding paper of his series, Rogers discusses the primary causes of death and the most frequent errors of diagnosis in 1000 medical autopsies. Over one-third of the deaths was due to tropic diseases. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 7. FEBRUARY 17, 1914.

1. HEILBRONNER, K. *Introspection as a Symptom of Pathological Conditions.*
2. *VOELKEL, E. *The Diagnosis of Infectious Diseases by Abderhalden's Method.*
3. SINGER, H. *The Specificity of Abderhalden's Dialysis Method.*
4. SCHWENBECHER, A. *Lead Poisoning from Drinking Water.*
5. RIMPAU. *A Milk-Borne Typhoid Epidemic in Munich During August, 1913.*
6. BITTROLFF, R. *The Treatment of Tuberculosis of the Ribs and Sternum by X-rays.*
7. WEGENER, W. *The Feeding of Infants with Larosan.*
8. FINGERHUT, L., AND WINTZ, H. *A Method for Determining Coagulation Time.*
9. DE WAELE, H. *The Technic of Abderhalden's Dialysis Test.*
10. KROH, F. *The Treatment of Peritoneal Adhesions.*
11. *SCHMIDT, W. *The Lack of Susceptibility to Adrenalin on the Part of Dementia Precox Patients.*
12. KOHRS, T. *A Fatal Case of Acute Encephalitis Following the Injection of Salvarsan.*
13. V. ZEZSCHWITZ. *A Case of Hemorrhagic Pancreatitis.*
14. KRAEMER, F. *An Aseptic Bandage for Surgical Emergencies.*
15. EMMERICH, R., AND LOEW, O. *The Treatment of Hay-Fever by Continued Doses of Potassium Chloride.*

2. Voelkel, according to Abderhalden's theory, made peptone-free extracts from diphtheria, anthrax, and typhoid bacilli, from certain trypanosomes and from the spirocheta pallida. He tested the serum of animals or patients infected with these organisms

against their extracts to discover the presence of specific proteolytic ferments.

The sera of animals and patients infected with typhoid were capable of splitting the typhoid bacillus albumin. Negative results were obtained in anthrax, diphtheria and trypanosomiasis. In a few syphilitic patients the serum split the albumin of the spirocheta pallida. In these cases the Wassermann reaction was strongly positive. Thus Voelkel concludes that in certain infections, the diseased serum has the power of forming peptone from an extract of the infecting agent.

11. In psychiatry, during recent years, considerable attention has been paid to the glands of internal secretion as having an influence on the symptoms encountered. Schmidt conducted the following investigations on 34 cases of dementia precox, and on 36 normal individuals or patients suffering from other psychoses. Blood-pressure determinations were made before, and at intervals after, the intramuscular injection of .4-.5 of a milligram of adrenalin. Schmidt found that the control cases reacted to this dose by a rise in blood-pressure of from 40-80 millimeters of mercury. None of the dementia precox patients showed an increase of more than 20 millimeters of blood-pressure, while the severer and acuter cases showed no change. Schmidt concludes that lack of susceptibility to adrenalin is a means of differential diagnosis between circulatory and catatonic stupors. He does not attempt to explain his findings. [R. F.]

No. 8. FEBRUARY 24, 1914.

1. ABDERHALDEN, E. *Further Studies in the Specific Action of the So-called Protective Ferments.*
2. HILNER, E., AND POENSGEN, F. *The Occurrence of Albumin Splitting Ferments in the Blood of Starving Animals During the Increased Nitrogen Excretion from Fat Destruction.*
3. *JACOB, L. *Clinical Signs of Staphylococcus Sepsis.*
4. SEHRT, E. *The Relation of Thyroid Insufficiency to Nervous Symptoms and Spastic Obstipation in Women.*
5. *WELZ, A. *Erysipelas as an Etiological Factor in Diabetes Mellitus.*
6. JUNGMANN, P. *The Anemia of Pregnancy.*
7. HABERMANN, R. *Intravenous Injections of Arthigonin in the Diagnosis and Treatment of Gonorrhea.*
8. SCHWARZ, A. *A Quick and Certain Remedy for Toothache and Earache.*
9. VOERNER. *Isapogen.*
10. STRAUCH, A. *Cough Produced by a Persistent Ductus Lingualis.*
11. PÜRCKHAUER, R., AND MAUSS, T. *A Case of Polyneuritis with Korsakow's Psychosis Ending Fatally and Following Neosalvarsan.*
12. BENDER, G. *Grape juice as a Food and Medicine.*
13. OELLER, H., AND STEPHAN R. *The Value of the Dialysis Method in Clinical and Serological Studies.*

3. Jacob reviews the literature on staphylococcus septicemia and reports eight cases of his own. Of these, three were due to primary osteomyelitis or paranephritic abscess, and ran a typical clinical course. The portal of entry in the other cases was unusual, arising from infected tonsils, from the intestinal canal, or from bronchiectatic cavities in the lung. Jacob reports this series to emphasize the importance of bacteriological investigation of blood and urine for the diagnosis and prognosis of all fevers of obscure origin. According to his observations, blood or urine cultures were positive in every instance, and the number of colonies which were recovered were in a general way parallel to the clinical severity of the disease.

5. It is recognized that various infections have seemed to be an etiological factor in diabetes mellitus. Welz reports two cases of erysipelas which developed typical diabetes a short while after recovery. One case came to autopsy and was found to have cirrhosis of the liver and degeneration of the islands of Langerhans in the pancreas.

In his discussion Welz admits that it is difficult to prove that the erysipelas was related definitely to the production of the diabetes. Nevertheless, he considers that the infection in his patients was the exogenous cause of the constitutional disease, according to Naunyn's theory that the majority of diabetics show a congenital defect in carbohydrate metabolism which leads to a true insufficiency upon the imposition of a variety of other factors. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 3. JANUARY 19, 1914.

1. BESREDKA. *Vaccination with Sensitized Virus.*
2. BRIEGER AND KRAUSE. *Further Communication on "Tryposafrol" and "Novotryposafrol."*
3. *BRÜCKNER. *The Cure of a Case of Tuberculous Peritonitis by the Injection of Nitrogen Gas into the Abdominal Cavity.*
4. PARTSCH. *Temporary Resection of the Palate, to Gain Access to the Naso-pharynx.*
5. LUDLOFF. *Experiences and Results with Open Reduction of Congenital Dislocation of the Hip.*
6. SIMON. *The Development of Sarcoma Following Photo-therapeutic Measures (Quartz-lamp).*
7. STODLER. *The Magnesium Sulphate Treatment of Tetanus.*
8. BARTSCH. *Accidents in Sports.*
9. LISSAUER. *Experimental Cirrhosis of the Liver.*

3. The author reports a striking cure by this means, which has also been tried and reported by Mosetig-Moorhof, Nolen, Folet, and Schmidt and Meyer. The patient was a young man of 16, who in spite of two laparotomies with the evacuation of respectively 6 liters and 2 liters of ascitic fluid, and in spite also of hygienic treatment, was becoming consistently worse. There was marked thickening of the peritoneum and omentum, and stubborn ascites. Between March 6, 1913, and May 17, 1913, he had four injections of the nitrogen gas varying from 500 c.c. to 800 c.c. in amount. On Nov. 13, 1913, he presented himself as symptomatically cured, and feeling perfectly well. The physical examination was negative save that in one area the now slightly thickened omentum could be felt. The abdomen was soft. This case seems like an authentic cure, especially as the amelioration in the symptoms and signs began immediately after the first injection.

[R. H. M.]

No. 4. JANUARY 26, 1914.

1. *KÜTTNER. *Intestinal Colic—The So-called Umbilical Colic of Children (E. Moro).*
2. STADLER AND LEHMANN. *Animal Experimentation in the Treatment of Tetanus with Magnesium Sulphate.*
3. CASSEL. *Staphylococcus Pyemia Following Furunculosis.*
4. MÜLLER. *A Case of Torticollis Due to Bony Deformity.*
5. *ARNETH, *Thorium-X in Pernicious Anemia.*
6. BRIEGER. *The Treatment of Sciatica by a Combination of Physico- and Hydrotherapeutic Measures.*
7. GHIRON. *The Kidney Function in Reflex Anuria.*
8. LISSAUER. *Experimental Cirrhosis of the Liver (Concluded).*

1. Moro of Heidelberg has described a condition of periodic recurrent colic in the region of the umbilicus, in children over four, which he calls "recurrent umbilical colic." The pain is sharp comes on very suddenly lasts only a few hours and may or may not be accompanied by vomiting. The pain is always confined to the region of the umbilicus. Moro says that these cases are usually entirely functional and due to a neuropathic disposition, though occasionally there is an objective finding, such as diastasis of the recti, or chronic obstipation. Küttner disputes these remarks, and reports six of these cases entirely cured by appendectomy. In his opinion Moro is wrong in saying that the condition is commonly a neurosis, and he claims that the majority of cases can be cured by removal of the appendix.

5. Arneth reports a case of pernicious anemia in a woman of 67 treated with thorium-x at frequent intervals for a period of a little over two months, with the following results: The red cells went from 1,904,000 to 3,064,000, the leucocytes from 1000 to 4200, and the hemoglobin from 42% to 70%. The subjective symptoms were improved. [R. H. M.]

Miscellany.

MEMORIALS.

THE Fellows of the Norfolk District of the Massachusetts Medical Society in the recent decease of our respected member, Roderick McLennan, M.D., adopted for record the following memorials:

RODERICK MCLENNAN, M.D.

Dr. Roderick McLennan came to Quincy in 1887, in his early manhood, gave to its people his entire professional life and was removed from their midst at the age of man's maturest judgment and safest and most valuable action.

Modest and retiring in manner, he was without fear in action, ever thoughtful and respectful of the welfare of the society and its members.

Never striving for external show, yet ever ready to advise and suggest where his wisdom and opinion were required. Never aspiring to public office, he was a valuable member of the medical and surgical staff of the Quincy City Hospital from its inception; also giving his valuable time and services to offices in our local society.

Of deep and broad training, with a store of wisdom and good judgment gleaned therefrom. Ever ready to give assistance to colleague and patient.

His presence will be missed at our meetings, at our hospital and in the sick room. His cordial salute, the hearty grasp of hand has gone, but the memory of the good physician will remain in the hearts of his colleagues whom he honored in life.

The members of the society extend to his bereaved family their heartfelt sympathy in their great affliction. To those to whom he gave unstintingly and unselfishly of his services as the good Samaritan, condolence is extended at this time.

Resolved, That this memorial be spread on the records of the society and a copy be sent to the bereaved family.

JOHN H. ASH, M.D.,
E. H. BUSHNELL, M.D.,
D. A. BRUCE, M.D.,
Committee on Resolutions.

At a meeting of the Norfolk South District Medical Society the following memorial was adopted:

JOHN FREDERICK WELSH, M.D.

Deeply sensible of its loss by the death of Dr. John Frederick Welch of Quincy, the Norfolk South District Medical Society desires to record the great respect and high esteem in which he was held.

Graduating in 1880 from Bellevue Hospital Medical College, his career is an example of a self-made man of the best type. Frank and outspoken in manner and ever loyal to his friends, he has always stood for honorable conduct and high ideals in the medical profession and in the community.

As a member of the society, for many years its secretary, and its president in 1905 and 1906, he has been active in its support, and his wise conservatism and good judgment have been invaluable. For more than a generation he has practised his profession with unceasing devotion, attaining a high reputation by his skill, and enlisting the love of his patients to a marked degree. Although no longer with us, his memory is an inspiration and his example forms a perpetual ideal for his associates.

JOHN A. GORDON, M.D.,
NATHANIEL S. HUNTING, M.D.,
OLIVER H. HOWE, M.D.,
Committee on Resolutions.

Correspondence.

RELATIVE TO THE REGISTRATION OF NURSES.

NATICK, MASS., March 17, 1914.

Mr. Editor: I have read with interest your editorials on House Bill 1186 in the JOURNAL for March 5 and 12, and would like to comment on two or three points:

1. The objection made by the opponents last year "that it would place too much power in the hands of the board."

2. "That similar training school inspection has proved of value and success in New York and Illinois, where it has already been adopted. Such examples are important arguments in its favor."

Last year's bill and also the one this year contain this provision: "Applicants for registration—must

have received a certificate of graduation from a training school—*considered reputable by the board.*" (Italics are mine.) These bills were submitted to persons who have accurate knowledge as to the results of inspection elsewhere, and decided exceptions were taken to the clause italicised. One reply says: "I should seriously object to this clause because it places too much power in the hands of any board with absolutely no limitations. It is just such a clause which has caused much trouble in Illinois."

Another, who has had experience as hospital superintendent writes:

"I think there ought to be a clause somewhere that prescribes just how far the investigation may go. It will not be conceded that investigators of training schools will have any powers of regulation of the hospital administration, or equipment or architecture, and unless there is something specific put in your law, and unless the registration officers are an exceedingly high class group of people, there is likely to come disagreements about the scope of this investigation. In the case of a nurse inspector who had impressed herself on the members of the board, the board would relegate its duties to her and this would be hazardous. It is a good deal easier to safeguard the situation in the law itself than to presume on the personal factor in the enforcement of the law. Obviously, legislation must be taken independent of the personal equation."

It is evident that the opposition has very good company

The argument that any abuse of power by the board could be rendered nugatory by changing the personnel of the board, since it is appointive, is really an admission that such opportunity for abuse of power does exist in the proposed law. Would it not seem the part of wisdom to safeguard by law any abuse of power rather than to depend on changing the membership of the board?

One would hardly expect New York and Illinois physicians and hospital superintendents would oppose and criticise a training school inspection that "has proved of value and success in New York and Illinois, where it has been adopted." What are the facts?

I quote from a paper entitled "Some Problems in Relation to Nurses' Training Schools," read at an annual meeting of the New York State Medical Society by Dr. Charles Stover, as follows:

"We may not inaptly call this the era of control by the New York State Nurses' Association. . . . One of the tendencies in the United States is to plan the course of instruction for the evolution of hospital administrators, ignoring the public demand for ordinary and domestic nurses. . . . Only ten per cent. of the nursing outside of the hospital is done by them." (Meaning graduate nurses.) "Is this the best return that the hospitals can give the public that supports them? What has the nurse organization done to meet the crying needs of the poor and middle classes for nursing at a moderate cost? . . . Why should not this society of 6,762 members have a voice in the evolution of a more ideal nurses' training school?"

At this meeting a committee was appointed, consisting of Drs. Stover, ex-president of the society, Egbert LeFevre, dean of the University and Bellevue Medical College, Alexander Lambert, professor in Cornell Medical College, and Roswell Park, of Buffalo, the famous surgeon. In its report the committee says: "It is a fair conclusion that the standard for entrance in New York is too high for practical results. . . . It is more important that the people have small hospitals than that a few highly trained nurses obtain the thus-far little coveted title of R.N. . . . Meanwhile your committee is of the opinion that the State should recognize the nurse problem as an experimental one, to be regulated at present by wise adminstration rather than by legislation."

In 1912 the Executive Committee of the Hospital Conference of the City of New York appointed a special Committee on the Training of Nurses to act with the President to secure either such modifications, or interpretations of the existing regulations "as shall render it possible for the hospitals of the city to continue the training of nurses in sufficient numbers to meet the demands for trained nursing service." This committee consisted of the superintendents of the Presbyterian, the Post-Graduate, the St. Luke's, the Roosevelt, the New York, the Methodist-Episcopal, the Bellevue and Allied, and the Mt. Sinai Hospitals. Space will not permit the report in full but it says, in part:

"The strict enforcement . . . governing the admission of probationers to registered training schools for nurses is impracticable. . . . It creates a dearth of pupils and hence of New York graduates. . . . We urge upon the Education Department such amendments as will give the authorities a freer hand in the selection of probationers."

It may properly be asked why do these physicians, and superintendents of hospitals representing 3000 beds, make such strong protests, if "the New York law is the best one in the United States"?

Emerson is reported to have said that "Justice is the fairest thing all around." The criticisms of the New York law would seem to show that it does not conform to Emerson's idea of justice.

The foregoing quotations are only a few of the many criticisms which I have, some of them personal letters, but these will suffice for now.

One might infer from your editorial of the 12th inst., that the State Board of Nurse Examiners is unanimous in its support of House Bill 1186, but that is not so. At the hearing, held on the 5th inst., one member of the board appeared in opposition.

All will agree that "The public needs protection against incompetent nurses as well as against incompetent physicians." But it is every year becoming more evident that registration of nurses protects only about one-tenth of the public, while the nine-tenths are left unprotected. It is self-evident that if any are entitled to legal protection those who are not able to pay the high fees of registered and trained nurses should receive at least equal consideration with those of abundant means. Today every state where nurses are registered virtually says to its inhabitants: "You who can pay the price can have the protection afforded by registration but you who can not pay the price must take your chances."

The time is nearing when "the public," which includes *all* the citizens, should demand legal protection against incompetency in any and all who nurse for hire, and this protection should embrace the poor as well as the rich.

In New York the standards which a training school must measure up to in order that its graduates may be allowed to take the examination for registration are so rigid that they debar the graduates of one of the best training schools in this state, yet those in authority acknowledge that the school in question gives an exceptionally fine training, and say to the school: "If you will promise to give two 'consecutive' years in the hospital instead of two years not necessarily consecutive, we will register your graduates, both past, present and future." This reminds one of John, the disciple, when he said to Jesus: "Teacher, we saw one casting out demons in thy name, and we forbade him, because he followed not us." Casting out demons, but not "following us." Training nurses successfully, but not "following us."

In the *Journal of the American Medical Association* for March 14 is a paper read at Chicago February 24, 1914, before the Tenth Annual Conference of the Council on Medical Education, by President Lowell of Harvard University on "The Danger to the Maintenance of High Standards from Excessive Formalism." President Lowell describes the present tendency in the training of nurses and the inspection of training schools so aptly that I quote at some length:

"My concern is the rules adopted at the joint meeting last March of the Association of American Colleges and the Council of the American Medical Association about the courses to be taken in college." . . . "We

are to ask not what a man knows, but whether the man has taken a course with a fixed number of lectures and laboratory work." . . . "You are using a rough mechanical test which is inaccurate on both sides, instead of a personal test which would be far more accurate." . . . "Americans are a mechanical people who trust to machinery to do their work, maintain standards and save labor. But mechanical devices as applied to human beings are apt to be defective, and in education they present, at the present time, a real danger. This runs from the top to the bottom of the educational scale." . . . "Our processes of education are inelastic, and if adapted to the ordinary person are hampering to the unusual mind. Is not this because we fix our attention too exclusively on the process, instead of on the result produced?"

It is to be hoped that the physicians of Massachusetts will post themselves thoroughly as to the present tendencies in the registration of nurses, that they will consider the needs of all of their patients rather than the needs of the well-to-do simply, and will join hands in an effort to provide reasonably safe nursing for the sick and suffering of all classes. Meanwhile, let us wait.

Very truly,

CHAS. H. COOK, M.D.

THE HARVARD MEDICAL SCHOOL OF CHINA.

PHILLIPS BROOKS HOUSE,

CAMBRIDGE, MASS., March 11, 1914.

Mr. Editor: This letter is intended to put the graduates of the Harvard Medical School in touch with the medical work recently inaugurated in Shanghai, China, by a group of graduates of the School.

The "Harvard Medical School of China" was established in Shanghai China, in 1913; and now has twenty-three students, a faculty of ten instructors, and occupies an excellent group of buildings, supplied free of rent for a period of years by the Chinese Red Cross Society. It is already a "going concern," and the opportunities before it for "service," which is its underlying motive, are great.

The purposes of the school are: (1) To teach modern medicine and surgery to Chinese students, and to assist in training leaders in the progress of modern medicine throughout China; (2) To coöperate with the Chinese government in inaugurating a greatly needed hygienic reform, in order to prevent epidemics spreading from there to other parts of the world; and (3) To study the diseases found in the Orient that threaten periodically the health of Occidental peoples, such as Bubonic Plague, Cholera, Leprosy, Filariasis, etc.

The work has advanced to its present stage on an annual budget of $25,000. We now face the necessity of the erection of our new hospital, and the establishment of an out-patient department. The money is already promised for the hospital building, but we need $30,000 for the purchase of the land. For the establishment of the out-patient department we are needing $5,000. An increase of $20,000 annually to our budget is also imperative.

We are now seeking for single subscribers to the above needs, and for others who will agree to become annual supporters for a period of five years. Checks for any sum will be gratefully acknowledged. It should be stated that it is expected that the work of the Institution will ultimately be taken over entirely by the Chinese. We are pioneering, and helping to set standards that will govern in the great medical advance, of world-wide importance, to take place throughout the Orient.

It is believed that, as a work of Relief, of Education, of Research, and of Prevention, it calls for the deep interest and support of Harvard men. We will with pleasure forward reports of the work to those who, at this time, are unable to take an active part, as well as to any other persons whose names you may suggest.

Very truly yours,

MARTIN R. EDWARDS, M.D.

A CORRECTION—TONSILLITIS NOT AN AIR-BORNE DISEASE.

State Board of Health, Boston, March 21, 1914.

Mr. Editor: In the issue of your JOURNAL for March 12, page 399, it is stated, concerning the recent tonsillitis epidemic in Wakefield, that "the milk and water supply have both been decided not to be the source of infection, which in this case, as is probably usually the fact, is considered to be air-borne."

This statement is erroneous, inasmuch as investigation by Dr. Frank L. Morse, State Inspector of Health, has shown that this epidemic was, with practical certainty, due to an infected milk supply, pasteurization of which was followed almost immediately by a cessation of the epidemic. Furthermore, I should question seriously any statement that the disease is probably "air-borne." In fact, all the evidence goes to show that the original infection in these epidemics arises either in some abnormal condition in the cows, or, what is more probable, in a severe tonsillitis affecting some person engaged in handling the milk.

Yours very truly,

MARK W. RICHARDSON, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING MARCH 14, 1914.

March 4, P. A. Surgeon D. G. Allen, from Newport Hospital to Training Station, Newport, R. I.

March 5, P. A. Surgeon F. M. Munson, to Mare Island Hospital.

March 9, P. A. Surgeon R. W. McDowell, detached Naval Academy, Annapolis, Md., to wait orders at Annapolis, Md.

March 10, Surgeon A. W. Dunbar, from Washington Hospital to Fleet Surgeon, Atlantic Fleet.

P. A. Surgeon E. L. Woods, Naval Hospital, Washington, D. C.

Assist. Surgeon A. R. Barrow, to Training Station, Newport, R. I.

Surgeon Edgar Thompson, from Guantanamo Station, to Washington Hospital.

Assist. Surgeon N. McClelland, from Charleston Yard to *Hartford*.

March 12, Surgeon E. M. Shipp, from Yokohama Hospital to Puget Sound Hospital.

P. A. Surgeon F. E. Porters, from *Rainbow* to Yokohama Hospital.

Assist. Surgeon J. G. Omelvena, from Cavite Station, to home, wait orders.

Assist. Surgeon J. V. Howard, from Canacao Hospital, P. I., to home and wait orders.

Assist. Surgeon L. L. Pratt, from Olongapo Hospital, P. I., to home and wait orders.

NOTICES.

UNITED STATES CIVIL-SERVICE EXAMINATION. MEDICAL INTERNE. GOVERNMENT HOSPITAL FOR THE INSANE.

The United States Civil Service Commission announces an open competitive examination for medical interne, for both men and women, on April 8, 1914. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the Government Hospital for the Insane, Washington, D. C., at $900 per annum, with maintenance, and vacancies as they may occur in positions requiring similar qualifications, unless it is

found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Graduation from a reputable medical college is a prerequisite for consideration for this position.

Both men and women will be admitted to this examination. Applicants must be unmarried.

Age, 20 years or over on the date of the examination.

Persons who meet the requirements and desire this examination should at once apply to the United States Civil Service Commission, Washington, D. C.

NEW YORK SKIN AND CANCER HOSPITAL

The governors of the hospital announce a course of Clinical Lectures and Demonstrations in the Out-Patient hall of the hospital on the following afternoons, at 4.15 o'clock.

"Syphilis," by Dr. Bulkley.

April 1. Primary lesions, genital and extra-genital—Innocent syphilis.
April 8. Early manifestations of syphilis.
April 15. Late manifestations of syphilis.
April 22. Marital and hereditary syphilis.
April 29. Treatment of syphilis.

"Cancer," by Dr. William Seaman Bainbridge.

April 30. Some practical phases of the cancer problem.

The lectures will be illustrated by cases, models colored plates, photographs, etc The course will be free to the Medical Profession, on the presentation of their professional cards.

F. HAAS, *Chairman of Executive Committee.*

SOCIETY NOTICES.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at the Psychopathic Hospital, 74 Fenwood Road, Tuesday, March 31, at 8 p.m., sharp. Telephone, Brookline 4900.

Business.

Program:—

1. Presentation of Patients.
2. Demonstration of Charts.
3. "Remarks on Mania," Dr. E. E. Southard.
4. "Analysis of the Second Hundred Recoveries at the Psychopathic Hospital," Dr. T. H. Haines.
5. "The Incidence and Type of Hallucinations in Five Hundred Cases of Mental Disease, with Remarks on Their Differential Diagnostic Value in Dementia Precox and Manic-Depressive Insanity," Dr. A. W. Stearns.
6. "On the Influencility of the Will in Voluntary Admission," Dr. G. E. Eversole.
7. "Blood and Cerebrospinal Fluid Examinations at the Psychopathic Hospital," Dr. H. M. Adler.

BRADFORD KENT, M.D., *Secretary,*
798 Blue Hill Avenue, Dorchester.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Medical section, meeting, April 1, 1913, at 8.15, at the Boston Medical Library.

PSYCHOTHERAPY.

Dr. J. J. Putnam, "The Present Status of Psychoanalysis."

Dr. L. Pierce Clark, New York, "Personal Experience in Psychotherapy."

Discussion opened by L. E. Emerson, Ph.D.; Richard C. Cabot, M.D.

E. W. Taylor, Chairman.

LESLEY H. SPOONER, *Secretary,*
260 Clarendon Street, Boston.

APPOINTMENT.

MR. ROBERT N. HOYT, '09, has just been appointed by the Corporation of the Massachusetts Institute of Technology to the position of special lecturer on Public Health Administration.

RECENT DEATHS.

DR. CHARLES BULLOCK, who died on March 16, at Arlington, Mass., was born in Providence, R. I., on March 16, 1836. He studied dentistry at Hartford, Conn., and began the practice of his profession in that city. In 1859 he removed to Cambridge, Mass., where he practised until his retirement in 1896. He is survived by his widow.

DR. JAMES N. BUTLER, who died recently in New York City, was born in 1861. After graduating from St. Francis Xavier College, he obtained the degree of M.D. from the Bellevue Medical School. Later he became a founder of the medical school of Fordham University, and its first dean. He was attending physician at St. Francis' Hospital and the Mission of the Immaculate Conception.

DR. MARCUS M. JOHNSON, who died on March 15 at Hartford, Conn., was born in 1843. He received the degree of M.D. in 1877 from New York University. He is survived by his widow and by one daughter.

DR. THEODORE R. WAUGH, who died on March 17 at Burlington, Vt., was born in 1847. He is survived by his widow and by one son.

DR. GEORGE MCNAUGHTON of Brooklyn, N. Y., died from cardiac disease on March 17, at the age of 57. He was born at Mumford, N. Y., and was graduated from Bellevue Hospital Medical College in 1878. He had practised in Brooklyn since 1881, and for five terms served as president of the Kings County Medical Society. Dr. McNaughton was a prominent specialist in diseases of women, and at the time of his death was visiting gynecologist to the Long Island College and Kings County Hospitals and consulting gynecologist to the Brooklyn, Jewish and Long Island State Hospitals.

DR. THOMAS W. MCMANUS of New York died from pneumonia on March 12, at the age of 48. He was a native of Brooklyn and was graduated from the College of Physicians and Surgeons, New York, in 1895.

DR. GEORGE O. WELSHMAN of Newark, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1895, was instantly killed at East Orange on March 17 by a railroad train striking his automobile.

DR. TIMOTHEUS TAMINOSIAN, who died of pneumonia on March 13 in Boston, was born at Antioch, Turkey, in 1861. After graduating from the Central Turkey in 1884, and in 1895 received the degree of M.D. from the Jefferson Medical College. Since that time he had practised his profession in Boston.

BOOKS AND PAMPHLETS RECEIVED.

Diseases of Children. A Manual for Students and Practitioners, by John McCaw, M.D., etc. William Wood & Co. 1914.

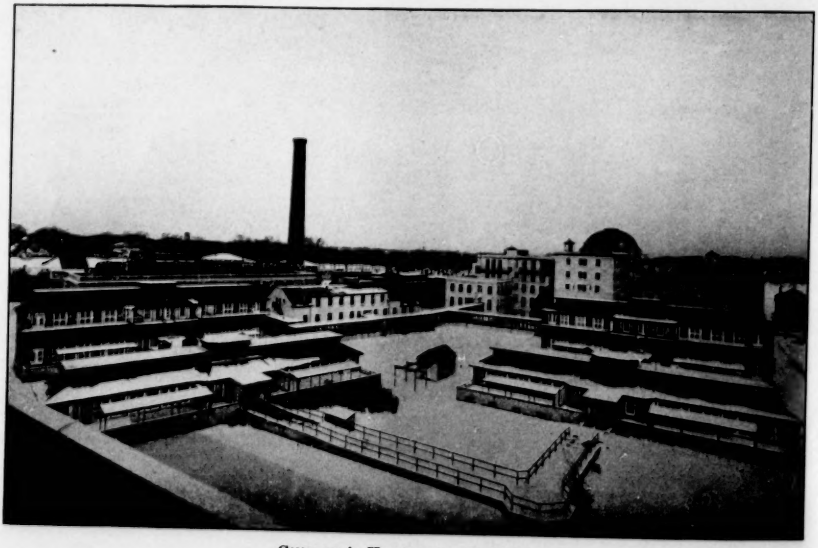
The Sensory and Motor Disorders of the Heart, Their Nature and Treatment, by Alexander Morison, M.D. William Wood & Co. 1914.

Transactions of the American Climatological Association for the Year 1913. Vol. xxix. Philadelphia. 1913.

Über Brüche des knöchernen Trommelfellrandes, ein Beitrag zur Unfall-Lehre von Prof. Dr. Heinrich Walb. Bonn, 1914. A. Marcus & E. Webers Verlag.

Organic Chemistry for Students of Medicine, by James Walker, LL.D., F.R.S. Gurney and Jackson. 1913.





CHILDREN'S HOSPITAL OF BOSTON.

Children's Hospital of Boston, 1869-1914

THE HISTORY AND PROGRESS OF FORTY-FIVE YEARS.

I. The Architecture of the Children's Hospital. Charles A. Coolidge, A.M.

II. The Development of the Hospital with Especial Reference to the Medical Service. Thomas Morgan Rotch, M.D.

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I.

The Architecture of the Children's Hospital.

By Charles A. Coolidge, A. M.

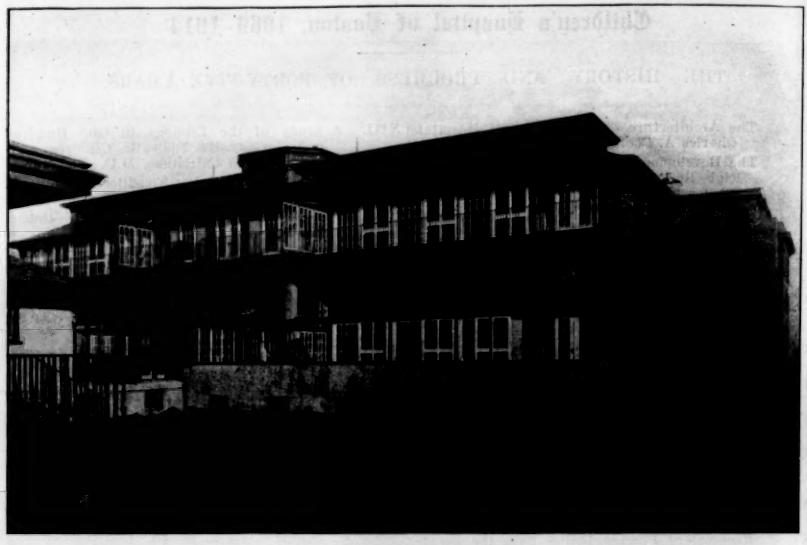
The Children's Hospital as an architectural problem was quite an unusual one. There were three separate gifts which required to be individualized and yet it was evident for the sake of convenience of administration and economy that three separate buildings should not be built. After several studies it was finally decided to build the present arrangement, which consists of an Administration Building which occupies the centre of the Main Building, from the money left in memory of Mrs. Robert Hooper, the Dispensary Building which is the portion of the Main Building to the west of the Administration Building, from the gift of Mr. F. W. Hunnewell, and the Nurses' Home, the portion of the Main Building to the east of the Administration Building, from the money left by Anne White Vose for a Nurses' Home. These different portions are separated by fire walls and are practically separate in their uses as well as in construction. These main buildings are fireproof throughout and the exteriors are built of a concrete conglomerate which consists of crushed trap rock, sand and Portland cement, without any coloring matter, which has a tendency to weaken the concrete. No attempt has been made to make it an artificial stone, but simply to have the most durable material, and to make the mass a uniform color which gives a more solid appearance to the structure than brick with stone trimmings, especially as there are a great many windows and quite large ones.

In the Administration Building are the offices, reception rooms, examining rooms, kitchen and serving rooms, storage rooms superintendent's suite, X-ray department, house doctor's quarters, ladies' aid rooms and servants' quarters.

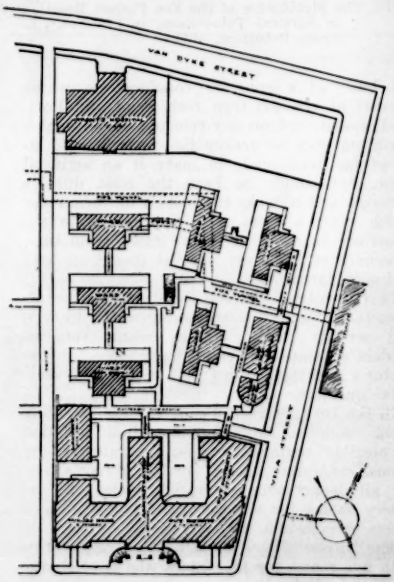
In the Dispensary Building are the receiving room, isolation suite for immediate isolation of possibly contagious cases, separate waiting rooms, examining rooms, treatment rooms, etc. for all departments, operating rooms and recovery rooms for minor surgical cases, plaster rooms, gymnasium, etc.

The Nurses' Home is built for seventy nurses with five rooms for the sisters who have charge of the hospital.

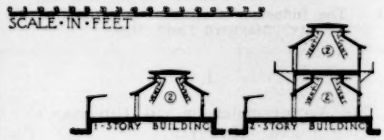
At the request of the medical staff the top floor of the Dispensary has a ward and arrange-



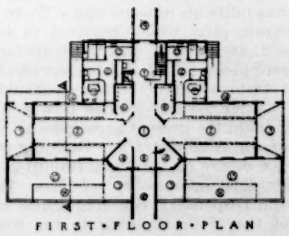
WARD BUILDING.



Block Plan of Buildings.



Ward Buildings.



KEY TO PLAN.

1. Lobby.
2. Ward-room.
3. Solarium.
4. Isolation Room.
5. Isolation Piazza.
6. Kitchen.
7, 8. Corridors.
9, 10. Connecting Corridors.
11. Bath-room.
12. Corridor.
13. Laboratory.
14. Piazza.
15. Piazza.
16. Shelter.

ments for dispensary cases so that when necessary a dispensary patient can be kept there, and not taken into the regular hospital. This ward and rooms are isolated. On the top floor are also a limited number of rooms for private patients. Except the above, all the patients are in ward buildings on the pavilion plan, entirely outside the Main Building on Longwood Avenue, and connected with it by a circulating corridor which has three levels, the lower one for pipes and heat, the second which is enclosed and half above grade, for food, etc., and the upper one which is on the level of the main floor, for general circulation. The latter is screened with glass sash where necessary, and has a flat roof which can be used as an emergency fire escape.

These wards are not of fireproof construction as the lower floors are practically on the ground level and the upper floors have large balconies on three sides connected with the roofs of the corridors. It was the intention to keep the shells of these ward buildings as inexpensive as possible, so that in the future as the treatment of hospital wards changes, the trustees would not be hampered with too expensive permanent wards. This does not mean that the arrangements for the comfort of the patients, or the plumbing or sanitary arrangements are not the best, but that the wards are of rough cast instead of stone or brick. A plan and section of the double wards is shown so that it is not necessary to go into the details, but merely to call attention to certain particulars.

There are at present two two-story double wards and two one-story double wards, and locations left for two additional double wards in the future. By double wards is meant a ward on each side of the corridor on the same level. These single wards contain ten beds each with an observation room separated, making twenty-two beds in a single story building and forty-four in a two-story building.

In planning for the future increase in the number of the beds, it is the intention to place another story on the one-story wards, making them two-story wards as shown in the accompanying section.

The wards have been carefully placed so that this can be done without cutting out the sunlight from the other wards. The wings of the Main Building on Longwood Avenue have also not been carried out to their full capacity to the south, so that when the number of beds in the wards is increased, which they can be to double the present number, the corresponding departments such as the Nurses' Home, etc., can be increased in the proper proportion in the Main Building.

The method of ventilation in the wards is by a monitor top in the ceiling as well as the windows on the sides. Those toward the south are large sliding doors with metal plates attached to the doors fitting tight into a deep slot in the bottom and sides. These doors make practically an open ward in summer, and allow the beds to be easily pushed out on to the piazza to the south, which is fifteen feet wide. This piazza treatment with a narrow roof on the outside away from the building is new, and has the advantage of allowing the sunlight to enter the ward and yet protecting the patient from the direct rays of the sun and the rain. In placing the second story ward above the first story ward, the monitor form is retained in both upper and lower wards, there is no damage done to the lower ward as far as ventilation or light is concerned, as the outer wall in front of the first-story monitor is merely open lattice, so that the air has perfectly free access to the windows in the monitor top; also the balconies on the second story, which are wide, are so far above the windows in the lower ward as not to interfere with the sunlight. Each separate ward can be entered from out of doors and access cut off entirely from the main corridor, and as each ward is complete in itself, if desired there can be perfect isolation.

The main operating rooms are in a building by themselves. There is an amphitheatre seating 83, with a separate entrance for the students from the outside. This amphitheatre will probably be used for lectures rather than for ordinary surgical demonstration, which will be given in the regular operating rooms of which there are three. In the usual large amphitheatre it is very difficult for the students to see much of an operation and an endeavor has been made in the smaller rooms to place twenty-four students within five or six feet of the patient while being operated upon. This has been done by placing low galleries at six feet four inches from the floor and as nearly over the operating table as good light will permit. There is a gallery on each side of the table, on which six students sit and six stand up, with a rest, and look over the shoulders of those sitting. Thus the operating table being three feet from the floor, they are as near as possible without interfering with the surgeon and his assistants. There is a large plate glass screen between the students and the operating room proper, and a heavy iron rail prevents them from leaning on the glass

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II.

The Development of the Hospital, with Especial Reference to the Medical Service.

By Thomas Morgan Rotch, M. D.

Report of the Board of Managers written by the Rev. Chandler Robbins, D. D. and presented to the Corporation in December, 1869, states that the original plans together with the by-laws for the Children's Hospital were laid before a few gentlemen on the 9th day of Decem-

ber 1868. An association for the establishment of a Children's Hospital in Boston was formed on the 23rd day of January, 1869, and the act of incorporation granted by the legislature in February of the same year was accepted, and the corporation duly organized on the 22nd day of March, 1869.

With the limited means at the disposal of the managers the hospital was begun in a small way. A house at No. 9 Rutland Street was bought and the Hospital was opened on the 19th day of July, 1869, and was dedicated with appropriate services on the 3rd day of August in the same year. Its capacity was 20 beds. The first patient was received on July 20th. In this house the hospital continued for one year.

In July, 1870, the managers secured by lease the estate at No. 1583 Washington Street with a capacity of 27 beds and this was occupied until 1882. In 1880 a lot of land, measuring about 31,000 square feet, was purchased on Huntington Avenue and the present building erected. It was dedicated on December 20, 1882. The medical staff was composed of a consulting board—Drs. F. H. Brown, John Homans, and William Ingalls; of physicians—Drs. A. M. Sumner, F. Gordon Morrill and J. P. Oliver; and of surgeons—Drs. S. W. Langmaid, E. H. Bradford and A. T. Cabot. Dr. H. C. Haven was Assistant Physician and Dr. Abner Post, Assistant Surgeon. Dr. W. H. Whitney was pathologist and Dr. N. O. B. Wingate was physician to the Convalescent Home. During the year the medical staff was increased by the addition of Dr. Thomas Morgan Rotch as assistant physician, and the managers, at the suggestion of the staff, appointed as resident house officers H. S. Otis and G. Haven with N. J. Knowles, Jr. as externe.

In the report presented by the managers to the corporation in 1885 and again in the reports of 1886-87 attention was called to the importance of the Out-Patient Department, a branch of the Hospital which, for some years had been doing a large amount of work in an admirable manner but in restricted quarters. In the latter part of 1886 the managers purchased a lot adjoining the former site, containing about 5000 square feet, and a thoroughly arranged and commodious building for out-patients was opened in September, 1888. The foundation of the east wing was also laid at this time.

One distinctive feature of the plan of the Children's Hospital was that it should be under the voluntary charge of the Evangelical Sisterhoods. Early in 1869 the Ladies' Aid Association was formed by the late Mrs. Chandler Robbins who gathered about her a band of devoted women and they and their successors have since constantly labored for the welfare of the institution. To them also is due the organization and support of the Convalescent Home at Wellesley.

At a meeting of the managers in 1881 it was voted to permit the establishment of memorial beds by those who desired to connect with the hospital the names of deceased children or friends.

On the 22nd of October, 1889, the east wing was opened for inspection and the capacity of the institution was increased to 96 beds. The new wing was intended mostly for medical cases, the two wards of the west wing being given up to surgical cases.

At the suggestion of the medical staff, Dr. Oliver F. Wadsworth was appointed Ophthalmic Surgeon; Dr. C. J. Blake, Aural Surgeon; Dr. H. L. Morse, Assistant Aural Surgeon; and Dr. Algernon Coolidge, Jr., Assistant in Diseases of the Throat.

Another object which the founders of the Hospital had in view was the establishment of a training school for nurses. During the year 1891 the managers carried out this plan and young women were received as pupils, the course of instruction lasting two years.

In accordance with the request made by the authorities of the World's Fair held in Chicago in 1893, it was deemed advisable to prepare an exhibit consisting of plans and views of the Hospital and Convalescent Home, reports, schedules of work performed, illustrations of treatment of patients and appliances, all of which might be of service to those interested in similar work. The plan was carried out and the exhibit shown in the anthropological department of the Fair.

It is well at this point to call attention to the reputation for excellent work which the institution has deservedly earned throughout the country among the laity as well as the medical profession. That this reputation is recognized is evidenced by the fact that during the year 1890 patients came for treatment from all parts of the United States as well as from New Brunswick, Nova Scotia, and Aberdeen, Scotland. Another evidence of the superior advantages offered by the institution is the number of physicians who come from afar to avail themselves of the clinical teaching and abundant material to be found in the wards. Interested students esteem it a high favor to be able to work under the physicians and surgeons in charge.

While it is well known that the hospital at no time had received contagious diseases, it has always been willing to bear its burden of responsibility and care for the cases which have arisen within its walls. Great precautions have always been employed to avoid such conditions. Diphtheria has always been one of the diseases to which children are more particularly liable and in 1895 much attention was given to the improving of the hygienic condition of the hospital building to guard not only against diphtheria but other contagious diseases. These investigations have been carefully followed up and in 1896 we find the bacteriology, etiology,

and the diagnosis and treatment of infectious diseases being scientifically pursued. The work on diphtheria is especially commendable and an article on the subject by Dr. F. Gordon Morrill in the Boston Medical and Surgical Journal drew wide and favorable comment. It is interesting to note that at this time every patient that entered the hospital was given an immunizing dose of diphtheria antitoxin, this being the first instance on record where such a procedure had been rigidly carried out in any institution. Since this measure has been adopted diphtheria has been practically eliminated from the hospital.

An incident of importance in the history of the hospital was the publication in 1895 of a volume called "The Medical and Surgical Report." This volume was highly commended by competent critics both here and in Europe.

In 1883, when one wing of the present building was occupied, we note that there was a daily average of 37 patients. In 1892, the year after the whole of the building was occupied the daily average of patients in the wards was 64. In 1890 the number of patients treated in the wards was 442, and in 1900 it was 1394.

In 1890 new cases in the out-patient department numbered 1,712 while in 1900 there were 2,586. In 1890 the visits to the Out-Patient department were 7,291, in 1900, 21,436, Up to 1900 there were no visits made for outdoor relief but in that year the value of this department of the hospital was fully proven and there were 1,828 house visits made by members of the hospital staff and nurses. In 1890 the number of nurses in the hospital was only 10 while in 1900 the average number was 35.

In 1902 the Board of Managers purchased three acres of land, adjoining the Medical School, from Harvard University, and it is here that the new building has been erected.

In 1904 the managers adopted the plan of including in their annual reports brief statements from the members of the Staff, giving information as to work done by the Hospital, the idea being to give a more accurate as well as a more adequate record. These records, as planned, were not to be scientific contributions of interest only to the profession, but practical statements for the information of laymen as well. This plan has been carried out and exhaustive reports in reference to work done, medical contributions, changes from time to time in the medical staff, additional departments, and various other measures by which the efficiency of the institution would be increased have been recorded.

The Hospital was the first in the country to establish at its Wellesley Convalescent Home a country branch giving to sick children the therapeutic benefits to be derived from fresh air. The Hospital has educated and trained a large group of skilled practitioners who have formed an alumni association.

In addition to its remarkable pioneer work on the immunization of diphtheria the medical staff has done much original work. To be mentioned are the modern methods of feeding, extensive Roentgen work on development and on studies connected with the time of emptying the stomach. The work in connection with the treatment of cerebrospinal meningitis is especially to be noted. Long periods of treatment of this disease by the administration of diphtheria antitoxin in one series of cases and lumbar puncture in another prepared the way for the serum treatment which has been and is so thoroughly and intelligently carried out in its wards. Lumbar puncture was first done on a series of patients in 1897 but the Flexner serum was first used in 1907.

In connection with the remarkably efficient corps of pediatricians forming the Pediatric Department of Harvard University the Hospital has rendered great aid to the complete and noted organization of this department and has opened its wards for a free study of Pediatrics to both students and practitioners. More continuous teaching is probably done in its wards than in any other hospital in the country.

The successful work of the Hospital has justified the efforts of the founders and those who have so willingly contributed to its maintenance and warrants an appeal for generous support in the future.

The writer wishes to state that he has been greatly assisted in writing this report by Dr. A. G. Helmick of Columbus, Ohio, senior house officer during his service. He is much indebted to Dr. Helmick for the large amount of work which was necessary to bring these facts, connected with the hospital, together.

III.

The History of the Children's Hospital with Especial Reference to the Orthopedic Department.

By R. W. Lovett, M. D.

The Children's Hospital was founded in July, 1869, and began in a very small way, treating only 12 medical and 18 orthopedic and surgical patients in the five months of the first year's activity. The staff consisted of three physicians and three surgeons, the latter being Drs. Francis H. Brown, S. W. Langmaid and John Homans. In the year 1870, however, it may be seen that the work was still very light, for only 30 medical and 39 orthopedic and surgical patients were treated in that year. In 1874 an out-patient department was opened.

In 1877 Dr. Francis H. Brown retired as surgeon, and was replaced by Dr. William Ingalls, who had been up to this time one of the

physicians. In 1876 Dr. Homans retired from the staff, and his place was taken by Dr. E. H. Bradford, who began then a service as surgeon which terminated only with his retirement in June, 1912. In this service of nearly thirty-five years he saw the hospital rise from its very small beginnings to an institution of national reputation, and in this progress he was one of the important factors. No one else has had so long a connection with the staff.

In 1879 Dr. Arthur T. Cabot was appointed assistant surgeon, and he became surgeon in 1882, a position which he held until his resignation in 1889. Dr. Brown and Dr. John Homans were made consulting surgeons in 1879, and Dr. Ingalls in 1880. Dr. Abner Post was appointed assistant surgeon in the same year.

In 1883 the hospital moved to the building on Huntington Avenue, at that time a modern, capacious and up-to-date hospital, which has now become so wholly inadequate to the present demands on it. In the first year in the new building, however, only 178 orthopedic and surgical cases were treated. In this year Drs. F. S. Watson and H. L. Burrell were appointed assistants in the surgical out-patient department.

With the move to Huntington Avenue there began what one might call the modern history of the hospital, that is, a rapid expansion in its work and usefulness. For example, in 1883 there were treated in the wards 299 patients and there were 1488 out-patients, while in 1903, twenty years later, there were treated in the wards 1505 patients and in the out-patient department there were 6341 new patients.

Dr. Langmaid resigned as surgeon in 1885, and was made surgeon to the throat department in the following year. Dr. Post became surgeon in 1886, and Dr. Watson resigned, while Dr. Burrell was made assistant surgeon. Dr. H. W. Cushing was in this year made an out-patient assistant. In the year 1887 Dr. Post resigned, Dr. Burrell took his place as surgeon, Dr. Cushing became assistant surgeon, and Dr. R. W. Lovett became out-patient assistant.

In 1889 Dr. Cabot resigned as surgeon, and his place was not filled. Dr. Burrell remained as surgeon till his death in 1910, and his place as surgeon was filled by Dr. James S. Stone in 1912. Dr. Bradford resigned in 1912, and was succeeded by Dr. R. W. Lovett. Other members of the present orthopedic or surgical staff are as follows: Associate surgeon, Dr. Augustus Thorndike, connected with the department since 1897; assistant surgeon, Dr. Robert Soutter, becoming a member of the assistant staff in 1903; junior assistant surgeons, Dr. Albert Ehrenfried, appointed in 1910, Dr. Arthur T. Legg, appointed in 1908, and Dr. James Warren Sever, appointed in 1908. In the department of general surgery the junior assistant surgeons are Dr. Charles G. Mixter, connected with the hospital since 1911, and Dr. William E. Ladd, appointed in the same year.

In the intervening years the roll of other names connected at some time with the orthopedic or surgical work of the hospital as members of the assistant staff is a brilliant one. These names are Dr. E. G. Brackett, Dr. J. E. Goldthwait, Dr. John Dane, Dr. E. H. Nichols Dr. R. B. Osgood and Dr. Z. B. Adams.

In 1903, by an arrangement made between Drs. Bradford and Burrell, the surgical service, which up to that time had been indiscriminately orthopedic, and general surgical, was divided into two divisions, one orthopedic and the other general surgical, Dr. Bradford taking the former and Dr. Burrell the latter. This division proving eminently an advance, it has been continued as a permanent division of the work.

The orthopedic service has shown the benefit of this division and the consequent better specialization in its own work by an increase in the volume of its work, and in the productiveness of the service. In the six years ending in 1912 this department contributed to literature three text-books and 91 articles in periodical literature. It gives 300 hours of clinical teaching to the students of the Harvard Medical, beside eight courses to graduates.

The orthopedic service is an active one, and in the year 1913 each orthopedic bed was occupied on the average 23 times in the year. Compared with a similar hospital in another city devoted largely to orthopedic cases, each bed in that institution was occupied five times in the year 1911. This efficiency of service is made possible only by the use of the Convalescent Home at Wellesley, opened in 1875, which has been maintained since then by the Ladies' Aid Association of the hospital, who have thus for some thirty years contributed so greatly to the advance of the hospital.

The growth of the orthopedic service may be shown by the fact that in 1913 the orthopedic operations numbered 423, an increase of 60 per cent. over the number in 1906, and in 1913 the orthopedic admission showed an increase of 41 per cent. over similar admissions in 1910, the figures of which happened to be available for comparison.

If the progress of the past offers any basis for judging, we may look forward to a great institution. In 1870, the first full year of the hospital, there were six medical men on the staff, no out-patient department, and 83 patients were treated. The running expenses were about $6,000. In the year 1912, thirty-two years later, the members of the consulting, visiting and assistant staff numbered 46, the visits to the out-patient departments numbered 26,500. 1,729 cases were admitted to the wards, and the expenses were $54,800. With the financial support of the public in maintaining the new hospital we may well see that a more rapid rate of enlargement and usefulness lies ahead of us in every department in an institution so admirably equipped as the one to which we are soon to move.

IV.

The Work of the Children's Hospital in 1913.

By John Lovett Morse, M.D.

The work of the Children's Hospital has increased steadily from year to year in spite of the fact that the accommodations for the treatment of patients have remained the same during recent years. During the year 1913, 1,750 patients were admitted to the wards. These were distributed as follows:

Medical	569
Surgical	522
Orthopedic	569

The daily average of patients in the hospital during the year was 70. The large number of patients admittted compared with the number of beds was rendered possible by discharging the patients as soon as it could be done without injury to them and by sending them to the Convalescent Home in Wellesley to regain their strength.

One thousand six hundred and forty-one operations were performed during the year. These were divided among the various operating services as follows:—

Surgical	483
Orthopedic	422
Throat Department	736

The operations, both on the surgical and orthopedic services were, of course, of the greatest variety. Those of the throat department were largely the removal of adenoids and tonsils, although many more serious and difficult operations were performed by them also.

The medical out-patient department is open daily, in the morning. The surgical and orthopedic out-patient clinics are held four times a week, in the afternoon. The clinic for nervous diseases is held twice a week, in the afternoon, and that for diseases of the throat, three times a week, in the afternoon. There is also a special clinic for the treatment of lateral curvature four times a week. A special clinic for the treatment by muscle training of neurological cases and of orthopedic cases suffering from paralysis has also recently been established conjointly by the orthopedic and neurological departments. This clinic is held four times a week, in the afternoon. The number of patients treated in the out-patient department was as follows:——

New patients in out-patient department	6059
Medical	2416
Surgical	1193
Orthopedic	957
Lateral curvature	64
Nerve	327
Throat	1102
	6059

Whole number of visits made	27,153
Medical	8006
Surgical	4319
Orthopedic	6893
Lateral curvature	2896
Nerve	3038
Throat	2001
	27,153

A very important department of the hospital, and one which is absolutely indispensable to the orthopedic and surgical services, is the surgical appliance shop. This department manufactures all the apparatus which is used in the treatment of orthopedic and surgical cases both in the wards and in the out-patient department, and also does a certain amount of work for other hospitals and outside physicians. It has eight employees and during the year did a business aggregating nearly eleven thousand dollars. The shop supplies the apparatus at very nearly cost, thus saving the patients considerable amounts of money.

The social service department has been even more active during the last year than ever before; 696 new cases were referred to the department during the year. These, added to the number carried over from 1912, make a total of 1500 families with which the hospital has been kept more or less closely in touch. The number of visits made was 3075.

The school of nursing is of very high grade. The course is for three years. The school is of the first rank, meeting the requirements of the Board of Regents of New York state. Its graduates are eligible for membership in the Massachusetts State Association and in the National Association of Trained Nurses.

The amount of instruction given by all the departments both to physicians and undergraduates in medicine has steadily increased. Physicians come to the hospital for instruction from all parts of the United States and Canada, as well as many from foreign countries. The students in the third and fourth years of the Harvard Medical School are in the wards almost daily. The value of the instruction given in this way can hardly be overestimated, since it extends the usefulness of the hospital far beyond its walls and to many children who have never seen or heard of it. A special series of lectures was given by the orthopedic department to

physicians at a minimum fee during the year, and a series of free clinical lectures by all the departments of the hospital to the Boston school nurses and the nurses of the Instructive District Nursing Association.

V.

ORTHOPEDIC SURGERY AT THE BOSTON CHILDREN'S HOSPITAL. A REVIEW OF THIRTY YEARS OF CONTINUOUS SERVICE.

BY E. H. BRADFORD, M. D.

THE progress in the development of the science and art of orthopedic surgery in the past thirty years has been reflected in the work in that department of surgery at the Boston Children's Hospital.

In addition to this, valuable experience has been collected from the work of the many trained observers at the hospital, and as a result deductions have been made and methods of treatment tried, rejected or accepted.

A complete review of the work would be unnecessarily detailed but a condensed statement of conclusions which seem justified may be of service.

TUBERCULOUS AFFECTIONS.

One of the most gratifying changes in the last 35 years in connection with the Hospital is that shown in the great improvement in the results obtained in the treatment of the tuberculous bone and joint affections.

Anyone who can recall the pitiful condition of the cases brought for hospital care in the early days, and their unsatisfactory state when discharged, will view with much satisfaction the results of treatment observed at present. It cannot be claimed that the ultimate goal has been reached, and much greater benefit will undoubtedly be recorded in the next generation, when more thorough measures of combating the invading disease, or strengthening the patient's resistance, have been discovered, but a more surprising improvement is to be recorded now than that formerly possible.

This is due to several factors, viz., greater skill in the early diagnosis of cases; more systematic and thorough treatment carried on continuously for as long a period as is necessary, and greater care in the stage of convalescence.

TUBERCULOSIS OF THE SPINE.

Dr. Sayre's boast, that there will be no more hump-backs, appears to have been justified by the results obtained when careful treatment is feasible. Certainly the cases brought to the in-service at the Hospital do not now show the distressing deformities which were the rule 30 years ago. There appear also to be fewer resulting abscesses than was the case formerly.

Improved methods of fixation on recumbency frames permitting rest without imprisonment, and locomotion with protection from jar, including head and trunk fixation by plaster and leather jackets, efficient appliances which increase the cures within the control of the surgeon. It may be said now to be a demonstrated fact that no case of caries of the spine where an early diagnosis is made and proper treatment furnished for a sufficient length of time need develop a noticeable deformity; but for such a thorough treatment and such satisfactory results not only a mastery of details is needed, but also a control over the care of patients for a relatively long period. Such a course of treatment does not necessitate hospital detention or even special skill in nursing but the care of a mother or nurse capable of carrying out the required directions. In fact, the care by an intelligent mother may be superior for these cases to that of an overworked nurse whose ward duties may interfere with detailed oversight and attention to important details.

For a choice between ambulatory treatment and recumbency, or locomotion with protection by plaster of Paris jacket fixation, braces with or without head supports, as well as for a selection of the form of brace or the method of application of plaster jackets, the surgeon is guided by the means at his command and the circumstances of the case, as well as by nursing and environment at command. The employment of brace without adequate skill in their design or application does not lead to the best results. Recumbent treatment without fresh air is objectionable. Plaster jackets improperly applied or used without judgment are both untidy and inadequate.

The following suggestions are to be kept in mind. The purpose of all treatment being to keep the diseased bodies from being bruised together by the superimposed weight, recumbent treatment is the best method, unless the disease is situated in such a part of the spine that it is possible to throw the superimposed weight more upon the firm and undiseased portion of the spine, *i.e.* the articular processes, and to prevent all motion forward at the diseased portion of the spine, or at least to limit it to such a degree that no injurious bruising occurs.

Manifestly, rigid recumbent treatment is more needed in a case when a large region, including many bodies is attacked than where only a small focus or an area surrounded by firm bone is diseased. In recumbency it is necessary to arch the spinal column forward and for this a firm pad (sawdust bags are the most serviceable) on a firm but not too hard surface is needed. This is adjusted to the back at the level of the disease and can be made to serve well if the recumbent

frame holds the patient in place. A plaster of Paris posterior shell, applied when the patient's spine is pressed forward at the diseased point, gives a back support to which the patient can be well secured. In children it is well to place them upon the usual bed frame in addition, to prevent the twisting of the spine by leg kicking.

In cervical caries, head traction, and in psoas contraction, leg traction, is needed, but the amount of pull should not be great when an increasing abscess is to be feared.

Details as to the various methods of applying jackets, or of the braces used must be left to the judgment of the surgeon. Certain common errors are to be avoided, viz., in plaster jackets, the omission of a head or neck support; neglect to carry the jacket down far enough in front; the application of a jacket which holds the patient forward rather than throws him back; or which does not throw the spine back at the point of disease; the application of braces, which do not exert adequate forward pressure at the point of disease, or do not hold the spine firmly enough either because of too light material, or from improperly applied straps.

In the question as to the length of time when recumbency or protective treatment is needed the surgeon has no guide but his own judgment. The presence of muscular spasm, the guarded movements of the patients when free from support are indicative of the instinctive need of support or protection. This differs from the feeble movements of a child just released from recumbency, or from a jacket or brace.

The X-Ray shadow is not an absolutely reliable guide in directing the treatment of spinal caries and the possible release from protection, even where satisfactory pictures can be taken.

New, firm bone may be present although penetrable by the rays, as in the case of the patella, which is often not shown in a front view of the normal knee joint.

That excellent results can be obtained with permanent cures without deformity, with recession of deformity, has been abundantly proved by the Hospital records. The subsequent history of cases severely attacked in childhood have in some instances been known in adult and married life, with the birth and growth of healthy children.

The operative treatment in Pott's Disease consists in opening the abscess and, recently, in the attempt at spinal fixation by bone graft and periosteal flaps.

In regard to the treatment of abscess, it can be said that sound practice seems to consist in abstention from incision as long as the abscess does not increase, or occasions no harm. Complete absorption of some large abscesses has been observed in many instances. But this conservatism is to be supplemented by radical treatment where incision is necessary. This should not only be free, but carried out so as to allow free discharge as near the original source as possible. To aid in this the surgeon will find a large steel uretheral sound of use in finding, and as a guide to the proper points of incision. Multiple incisions in the back, side, and front are often needed to drain a psoas and lumbar region properly. In some instances, costo-transversectomy is needed to drain an abscess in the post mediastinal region, which caused distressing and alarming attacks of dyspnoea. The operation is not difficult, though it is sometimes not easy to palpate and tap the abscess after the opening through the thoracic wall has been made, if the abscess is well forward on the front of the vertebrae.

The injection of germicides into abscesses in Pott's Disease without provision for drainage has not found favor in the Children's Hospital wards. A few unfavorable cases may have prejudiced the observers.

The attempt to ankylose the back of the spinal column by bone transplantation, or by causing ankylosis of the spine, is so recent a procedure that sufficient clinical evidence has not yet been secured to justify a critical estimate of the permanent value of a method. It certainly seems to promise much in shortening the period of treatment.

TUBERCULOUS DISEASE OF THE HIP.

What has been said as to the results now obtained in tuberculosis of the spine can be repeated with equal truth in regard to tuberculosis of the hip.

There is less deformity, fewer abscesses, and less bone destruction in the cases sent into the in-service of the Hospital for treatment, than was formerly the case. Much better results are obtained now than formerly.

This has been shown in the statistics of the results in cases treated in the Children's Hospital, five or ten years after the end of treatment as compared with the former results, and there is reason to believe that at present even better results can be expected.

The problem, however, of the treatment of hip disease is not a simple one, but requires more thought than the treatment of caries of the spine with modifications to fit the varying conditions. Operative interference, attacking the bone in caries of the spine is admittedly impracticable, but in the hip, the natural inclination of the surgeon is to shorten the difficulty by radically eliminating the disease by excision, erosion, removing tubercular foci. The experience of the Children's Hospital in the past 30 years, after a careful trial of both operative and conservative methods, coincides with the experience in many other clinics, in the opinion that where conservative methods can be systematically carried out, which, with proper organization of Hospital, out-patient department, out-door relief, convalescent country homes, are entirely possible —much better results follow than if the eradica-

tion of diseased foci is attempted by operative measures. Surgical Tuberculosis of bone is a constitutional disease with local manifestation. Surgical intervention should be directed to meet the local indications, preventing bone bruising, pain, deformity,—promoting drainage of detritus, and the reparative bony healing, almost sure to occur if fresh air and as much activity as the lesions permit. To cage children in beds, in hospital wards, in heavy plaster bandages preventing locomotion, are measures which may be necessary for a time, but the time should be as brief as possible and, fortunately, in a large majority of cases in children, unless the disease has reached an advanced stage, the time of imprisonment need be short. The surgical indications for prevention of deformity, bone trauma can be met while the patient enjoys comparative freedom in locomotion.

The tuberculous bone process as has been abundantly shown in pathological specimens, not being rapid in its progress, permits and stimulates a conservative bone reaction in the adjacent tissue which if conditions are given, eventually heals. This healing is delayed by injury to bone tissue, as is inevitable in operative surgical interference involving bone destruction. Such interference may be at times necessary when the carious detritus can not escape and acting as an irritant, promotes progress of the disease, where the amount of detritus is too great for absorption, and where no escape is possible. The true *vis medicatrix* in hip disease, as in tuberculosis elsewhere, is the antidote which Nature furnishes in an improved environment. Naturally more can be expected in the way of recovery in children than in adults, both because the reparative power is greater in the former, and a longer period is needed for repairs, and because it is more easy to control favorable conditions of environment for children than for adults.

Early excision; excision of the acetabulum; partial excisions; channeling for foci; are not procedures which are to be recommended for tubercular disease of the hip in children, according to the experience of the Children's Hospital.

As a life saving measure in neglected cases amputation at the hip, in extensive pelvic disease, has been done 4 times in the early period of the Hospital, when more neglected cases were brought for treatment. In one, the patient was known to live to manhood, enjoying excellent health. In two others, death from amyloid disease followed several months after recovery from the operation. In a fourth, the ultimate result was not known.

Operative dislocation of the hip, to relieve interarticular pressure in advanced acetabular disease, was performed three times with benefit and in one instance, the case was followed to adult life, a complete cure resulting with deformity not yet corrected, but perfectly correctable by osteotomy.

The present routine treatment at the Children's Hospital consists of a bed frame, and traction during the acutest stage, the early application of the abduction traction splint which furnishes better fixation, allows more locomotion, and less bone atrophy than a plaster spica bandage; the use of this with crutches during the florid stage of hip disease followed by a perineal crutch, and weight bearing gradually permitted, according to the progress of the disease toward recovery.

Increasing abscesses are incised, existing deformity corrected either under an anaesthetic or by pull; osteotomy being reserved for healed cases with deformity.

Under such treatment subluxation should be prevented, abduction and flexion also, though in rapidly growing children the prevention of these, especially a flexion deformity, demands protection and limitation of weight bearing for a long period until the epiphyseal bone has regained the required firmness.

TUBERCULOSIS OF KNEE, ANKLE, SHOULDER AND ELBOW.

The conservative treatment of these cases in children seems justified in preference to the operative removal of bone, other than sequestra or detritus. Plaster and leather fixation, with a Thomas knee splint for the knee and ankle, with fixation for the elbow, eventually give as satisfactory results as can be obtained. The course of treatment is, however, regrettably slow, and the use of some methods of early constitutional cure, besides that which comes from protection from trauma and the natural power of repair of the individual, is much to be desired.

These affections are treated successfully on the same principles mentioned in regard to treatment of caries of the spine and hip disease, but the treatment is modified by the varying anatomical and physiological conditions. In the upper extremity the problem of weight bearing being removed, the treatment is simplified, in the shoulder, the drag of the weight of the arm prevents bone crowding, but the spasm of the strong pectoral muscles draws the arm to the side, and furnishes the indication in fixation for an angular axilla pad.

KNEE—ANKLE.

In the lower extremity Thomas' well-known splint, with its modifications is of recognized service, but it should, in the acuter stage, be supplemented by plaster of Paris or leather fixation.

Radical operative excision should never be resorted to in tuberculous disease of the knee in growing children.

In disease of the ankle, subperiosteal removal of an extensively diseased astragalus sometimes shortens the course of the affection but statistics have appeared to show the best results following



Fig. A.—Abduction traction splint padded. (Bradford.)

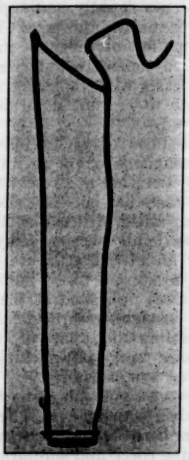


Fig. B.—Abduction traction splint without padding or straps. (Bradford.)



Fig. C.—Child wearing the abduction traction hip splint. (Bradford.)



Fig. 10.—Rear view of the abduction traction splint applied. (Bradford.)



Fig. E.—Model showing trunk fixation by traction applied.



Fig. F.—Model showing lack of fixation when traction is not applied.



Fig. G.—Model showing lack of fixation of hip-joint by plaster spica from the necessary looseness at the pelvis and trunk.

conservative protective treatment, *i. e.*, plaster bandage fixation and a Thomas splint to prevent the injury from weight bearing, in locomotion.

FRESH AIR TREATMENT.

In all tuberculous affections of the joints the chief reliance for cure must, at present, be placed on the tonic of absolutely fresh air whatever may in the future come from vaccine or serum therapy.

The statistics of the Convalescent Home of the Children's Hospital have demonstrated clearly not only that fresh air is beneficial in tuberculous bone cases as in tuberculous affections of the lungs, but that it has a tonic value. Hospital cases removed to fresh air shacks increase in weight, appetite and color; while the physiology of this is not clear, the fact can be regarded as demonstrated.

It would appear that sea air is not superior to that of the fields. It is important that the air should be fresh during the night as well as the day.

OSTEOMYELITIS FROM PUS-MAKING GERMS.

Thirty years ago the distinction between the different forms of caries of the bone were not known and as the relation between osteomyelitis and certain germs had not been studied, the fact that the pathological history of the affection caused by the invasion of the tubercle bacillus differed from that caused by the irritation of the several forms of cocci, or that the latter differed was not understood. While the matter is as yet one which demands much more investigation, enough is known as to the two groups of bone infection to base different policies in treatment.

The fact that as a rule osteomyelitis from the pus causing cocci attacks the diaphysis, and that from the tubercle bacillus involves the region of more rapidly growing bones; the epiphysis or juxta epiphysis, *i. e.*, the diaphysis at its junction with the epiphysis is sufficiently established to be accepted as a rule, with exceptions, and indicates that in the slower developing tuberculins more attention needs to be paid to the prevention of deformity than where the marrow of the shaft is attacked, with its stronger and less rapidly growing and less rapidly cicatrizing bone. In the cocci group of osteomyelitis the indication for drainage is the chief one, whereas, in the tuberculous osteomyelitis the chief purpose of the surgeon is to put the tissues into such a condition that the reparative process may obliterate the destructive otitis.

In fulminating cases of osteomyelitis the indications are clear, viz. the region of invaded bone should be found, incised, and the bone drilled. High temperature and blood count are to be observed with marked constitutional symptoms and usual local oedema, or swelling at the point attacked.

In the arthritis of infancy, so called, an acute affection, the pathology is not well understood, except that joint destruction, especially of the hip occurs rapidly and suppuration takes place and the invading germ is not the tubercle bacillus, but of the pus-causing group of cocci.

Speedy operative interference is demanded in these cases with the early use of a traction appliance to prevent deformity where the hip is involved.

The form of caries following typhoid fever or pneumonia offers an interesting field for investigation, but at present the clinical course of these cases has not been adequately studied, nor has an allied, distressing ailment where several of the joints become ankylosed and distorted after an attack of acute severity, marked by pain, prolonged fever, but without suppuration. The cases presented at the Children's Hospital have brought records of a prolonged sickness resembling in some of its clinical features typhoid fever, but lacking the distinctive intestinal symptoms.

Cases of multiple bone tuberculosis, cases of mixed infections, *i. e.*, where an original tuberculous bone lesion has been invaded by the pus-forming cocci, and suppurating osteomyelitis has resulted, with such sequelae as to make the original nature of the affection uncertain, have naturally been not infrequent, indicating the need in the future of carefully recorded details of the initial condition of the patient.

It may be said that the prognosis of these cases in children is surprisingly good, when favorable nursing conditions can be furnished.

RACHITIC DEFORMITIES.

As the Children's Hospital has been for many years the chief clinic here for the treatment of rachitic deformities it is to be expected that marked progress has been made in the different methods of treatment in this most common affection.

Formerly, operations upon bone were regarded as a dangerous undertaking, and children were subjected to a tedious treatment with heavy and cumbersome apparatus, with but little prospect of substantial improvement in resistant cases.

The introduction of aseptic measures has made osteotomy safe; osteoclasis is easily performed, and simple appliances adapted to younger and less resistant cases are of service. The X-Ray enables the surgeon to determine the character of the deformed bone, and a more careful and extended knowledge of the clinical history of cases, made possible by large and well organized hospital clinics, have taught that in a large majority of cases the tendency is to a rectification of the deformity in growing children if the conditions favoring help are given. All this com-

bined makes the treatment of these deformities a matter of no great difficulty.

Modifications of the Thomas knee splint can be made for use at night for such young children as require correcting pressure; light walking, correcting appliances can be used where necessary in deformities not suitable for operation and with threatening increase of curves, as a rule cases older than 4, with marked curves should be operated on. Osteoclasis by means of an osteoclast is more precise than manual osteoclasis, and osteoclasis is a simpler operation than osteotomy and therefore preferable in bow-legs. Osteotomy is preferable where correction near the knee or hip is required as in knock-knee and coxa vara. Subcutaneous osteotomy in skilled hands can be made as precise as through a skin incision and is preferable as being simpler. Linear osteotomy, and no further injury of the periosteum makes blood clot healing certain, and if the bone is divided three-fourths through the shaft and the rest broken, the interlacing fibres of the periosteum secure speedy bone healing and allow proper rectification of deformity. Perfect allignment is not necessary, but correction permitting weight bearing in an improved position is followed by further rectification through normal growth.

Anterior tibial curves can be treated without wedge-shaped bone exsections by linear osteotomy of half of the bone and straightening, with blood clot healing of the resulting gap, with or without tenotomy of the tendo Achillis to overcome the bow-string tension on the curve.

Experiments have shown that linear section of a part of the bone is made by osteoclasis. The bone cracks cleanly on the side opposite to the pressure with slight tearing on the proximal side; there is no danger of splintering or shearing in long bone. In osteotomy properly done the clean section is at the point of attack by the osteotome, and any irregularity in the division occurs where the section is completed by manipulative correction. Danger to the arteries and nerves is reduced to a minimum in osteotomy if the osteotome is driven directly through the nearest point to the bone cortex and by manipulating the osteotome the bone undermined from the inside until complete fracture is possible by manual force. A small osteotome will be found preferable over a large one by a surgeon used to the procedure.

In some instances manual correction of rhachitic curves will be found more easy if the limb has been bandaged by a plaster bandage, worn for a month. Bone atrophy takes place. There is, however, no advantage in this method of procedure over osteotomy.

Of the various forms of osteoclast the well known Rizzoli's appliance has been found reliable and practicable in the clinic. Simple and effective also is a modification of Little's osteoclast.

After correction, the limb, protected by cotton wadding, or a soft bandage, is held in plaster of Paris fixation for a few weeks, after which as a rule the bone is firm. It is advisable that the plaster bandag · be bivalved so that the front of the limb may be inspected at will by the surgeon without disturbing the position. If the plaster bandage is a broken one this can be done without weakening the fixation of the fragments and the surgeon may reassure himself as to the position of the fragments and the proper correction of the deformity.

PARALYTIC DEFORMITIES.

In no branch of orthopedic surgery has there been so surprising an improvement as in the treatment of the deformities of · anterior poliomyelitis.

The former treatment consisted simply in the endless and unbeneficial application of Faradic electricity and massage, and awkward and, in the main, useless appliances with the aid of tenotomy of the tendo Achillis in a few instances.

Improvements in appliances have enabled the surgeon, through purely muscular treatment, to secure improvement in the weakened but not paralyzed muscles by the exercise given in locomotion with light appliances permitting, as far as possible, motion in all directions except in the direction of deformity. The essential in paralytic affections of the lower extremity is to place the child on its feet with frame, crutches, or other appliances giving it the sense of locomotion and activity. Deformities are easily corrected by tenotomy, aided by osteotomy in extreme cases, with forcible corrections, and in some cases open incision.

POLIOMYELITIS.

It is an interesting fact in the history of medicine that an interest in the study of poliomyelitis should have been developed acutely and suddenly all over the medical world in the last five years although the ravages of the disease itself have been common always, and there is no reason to think that the affection is more prevalent now than heretofore. It is to be hoped that renewed investigations will bring forth remedial measures which will control our surgery of deformities. It is also singular that this affection was almost ignored in the medical instruction of fifty years ago, except a mention of what was classed as teething palsy, or infantile paralysis.

The treatment of the deformities of poliomyelitis if described in detail would demand a volume in itself for adequate presentation, as the manifestations vary greatly, and much persistency and some ingenuity are needed to furnish the substantial practical relief which may often be given by the surgeon in the correction, the prevention of deformities, and in the utilization of damaged limbs.

A brief statement of the principles involved in the measures to be selected may serve to illustrate the advance made in the last 30 years in combating this affection.

The disease itself displays in most instances at first a marked effort for recovery, for 6 months or a year, and later a tendency to develop deformity from the enforced misuse of the damaged limb. The position in which a dangling limb is held, from constant or gravity position, strains certain weakened muscles and permits contraction of unopposed muscular groups. The superimposed weight falls faultily upon the damaged foot and makes a distortion which becomes permanent with growth. Although at the outset only certain muscular groups are permanently paralysed, many muscles being weakened, and others impaired in their strength by a lack of use, the principles of treatment demand, when it becomes evident that no recovery is to be expected in the muscular groups inevitably damaged, giving such freedom to the limb as may approach the normal and develop strength in supplementary muscles to make up for deficient function.

In the correction of deformity the measures needed are simple: gradual or forced stretching of the contracted muscles, aided or not by tenotomy, myotomy, ar even osteotomy, as may be necessary, in order to give the most favorable, useful bearing alignment of the bony structure possible.

Apparatus of the simplest character which is effective is to be furnished to aid proper weight bearing and to check contraction of an unopposed group of muscles.

For the partial restoration of functional activity the employment of muscle transference is of great value and the use of artificial ligaments to check the flail joints has proved of great value.

In cases where no muscles are left unparalyzed and muscle transference is impossible, stiffening the joints by partial excision of the cartilaginous surface, or in paralytic calcaneus, the removal of the os calcis and slipping the foot back, thus checking heel drop are successful procedures.

The details of these measures would form a chapter in themselves. Here can be recorded the fact that few cases of infantile paralysis of a lower extremity need remain unrelieved. Complete restoration of function is not possible, but the children can be freed from imprisonment, to a wheel chair.

SPASTIC PARALYSIS.

Little's Disease was formerly treated by massage and appliances as it was regarded as a central nervous affection, cerebral paralysis with a lesion in the cortex. The neurologists considered surgical treatment irrational and absurd, but empirically orthopedic surgeons proved the contrary, Dr. Gibney of New York and the surgeons at the Boston Children's Hospital being among the first.

It is now known that tenotomy and myotomy, or muscle paralysis surgically induced, followed by muscle training, presents a feasible method of treatment followed by benefit.

The affection being one of disturbed muscular balance the temporary paralysis of the muscles with exaggerated muscular spasm and the development of the overpowered muscles, accompanied by appliances making locomotion possible and correcting a tendency to a relapse of the deformity, is always followed by improvement, in cases that are not mentally defective. Experience has shown that there is a tendency to a gain of muscular control in all these cases if a stimulus to muscular effort is furnished. The removal of deformity removes an impediment to muscular exertion.

Correcting appliances without tenotomy are of little use in these cases. A long after-treatment, muscle training, is to be expected.

Alcohol injections paralyzing the nerve, bringing an exaggerated impulse in addition to the measures correcting the deformity, has appeared to be of advantage, but the exact value of the procedure is still *sub judice*.

Cutting the posterior roots in children who can be helped by milder measures is with our present experience not justified. The mortality of the procedure in children, cannot be disregarded except in the severest cases

ANKYLOSING ARTHRITIS. ARTHRITIS NODOSA.

While degenerative arthritis, the degenerative changes of middle life or old age, the spavin of animals is not seen in children, an affection often confounded with it though pathologically different is occasionally seen in a distressing form in children. It is polyarticular and in this differs from joint tuberculosis. There is usually a painful stage, there is disability and distortion.

While a scientific method of treatment of ankylosing arthritis has not yet been developed many cases at this hospital has shown improvement and in some of the milder cases recovery after a system of treatment directed to the correction of the deformity, steadying the limbs if in the painful stage by plaster of Paris bandages, using apparatus, there is recurring deformity and apparatus, with treatment stimulating the circulation locally; greater improvement in methods of treatment may be hoped for if advances in bio-chemistry succeed in throwing more light upon the nature.

Although this affection has been much studied under different names and has been supposed to be of a tonic nature, the exact nature of the toxin has not yet been established, nor in fact that it was not due to some defect in mentabolism, *i. e.*, an anti-intoxication.

While it is more frequently seen in adults

(in the writer's experience in women) some of the most pitiable cases occur among children, even in infancy.

In other instances the affection appears in children in a much milder form and is followed by gradual recovery, apparently aided by the treatment.

After it became established that certain joint tissue change affections and disabilities result from a degenerative process in contrast to the destructive inflammatory carious processes caused by the entrance of definite germs, it appeared that the treatment needed was to stimulate the tissues rather than to promote tissue atrophy from rest and fixation.

Where active inflammation is not present, the amount of use should be all that is practicable within the limits of discomfort and violence or the trauma of strain. Gradual use under proper proportions is beneficial, aided by such measures as stimulate the circulation, *i. e.*, massage, especially vibratory massage, dry heat, electricity, static, the intermitent current, hydrotherapy, passive exercises, but especially active exercises, weight bearing, carefully directed.

An unexpected amount of improvement will often follow these methods of treatment persistently carried out, accompanied by proper attention to metabolism.

This combined with corrective or prevention of deformities and the protected use of the limbs guided from strain if necessary by crutches or light apparatus, form a practicable system of treatment which must serve until increasing knowledge may furnish a most positive method of cure.

CLUB FOOT.

The treatment of congenital talipes equino varus 40 years ago was successful in many instances, but the methods were clumsy and the need of thorough after-treatment was not recognized. Relapse and incomplete correction was too commonly the result.

The morbid anatomy was not well understood. The Scarpa shoe formerly much used may be taken as an appliance imperfect for correction and impossible as a walking shoe in after-treatment. Removal of the cuboid, astragalus, and wedge-shaped excision of the tarsus, all mutilating procedures, had been occasionally employed and even amputation performed in resistant cases.

At present all cases of club foot from infancy to adult age are to be regarded as curable without mutilation and with the restoration of normal function. It is, however, necessary to meet certain definite indications fully and thoroughly.

The affection is a congenital displacement of the bones of the foot chiefly at the mid-tarsal articulation, with adapted alteration in the soft tissues, ligaments, tendons, and in the shape of the cartilage and bone in the joint surfaces of the astragalus and os calcis. Roughly, the deformity may be regarded as a congenital inward subluxation at the mid-tarsal articulation.

Treatment in brief consists in the gradual or forcible correction of the misplaced bones with retention in an overcorrected position for a sufficient length of time for the cartilage, ligaments and muscles to adapt themselves to the normal positions so that the correction becomes permanent.

In infancy under three months, repeated plaster of Paris correction without tenotomy, and in children in arms with tenotomy of the tendo Achillis, and in older children with tenotomy of the tendinous insertion of the tibials, plantar fascia as well, enables over-correction of the deformity. This over-correction should be maintained for several months, and should be followed by some apparatus to ensure normal walking, for in young children a turn in gait leads necessarily to relapse.

Proper walking braces worn inside the shoe, holding the foot in an exaggerated valgus position are often needed. On the sole of the boot a high wedge pressing up the cuboid will correct intoeing in walking if the varus has been fully corrected.

In resistant cases it is sometimes necessary to remove a wedge-shaped piece of bone from the neck of the os calcis and of the astragalus, sparing the articulation to secure proper overcorrection. It is especially important that the cuboid be placed in a normal position, otherwise relapse is sure to follow even if apparent correction has taken place. A club-foot wrench will be found of great assistance in the more resistant cases.

TORTICOLLIS.

The improvement in the treatment of wry neck, *i. e.*, the deformity due to contraction of the sternomastoid, is the result of the aseptic method in surgery. In the preaseptic days the surgeons dreaded the danger of pus in the deeper fascia and subcutaneous tenotomy was the operative procedure employed to divide the contracted muscle. This division was not easily performed thoroughly on account of the neighboring large vessels. Contracted muscles partially divided do not permit satisfactory results; much was left by the surgeon to after-treatment and heavy appliances were used in these half cured cases. When open incisions became safe cures of torticollis were more readily accomplished. The contracted muscle is to be thoroughly divided, the distortion, forcibly over corrected, the head held in an overcorrected position for three months by a plaster of Paris bandage, or by this followed by a light but efficient correcting appliance. There are several methods for the division of the contracted muscle. The one preferred by the writer is an incision carefully made parallel to the clavicle, a few lines above it, with complete division of the sternal and clavi-

cular insertions, a director having been inserted under the tendon to protect the vessels which lie deeper. It is rarely necessary to divide the scaleni for even when contracted they may be forcibly stretched sufficiently.

A complete permanent cure should result.

CONGENITAL DISLOCATION OF THE HIP.

In the investigation of methods of care of an affection hitherto regarded as incurable, the Children's Hospital has been active for thirty years, from the time of the premature announcement of a cure, afterwards followed by a relapse, by Buckminster Brown by the means of traction applied continuously for a long period, and the first attempt, apparently but not actually successful, by Post of Boston at manipulative reduction. Subsequently the reduction by open incision was performed with a fair percentage of success in a number of cases. Hoffa, of Berlin, operating upon one, and later the method of manual forcible reduction, the Paci Lorenz method, was employed, (several operations being performed here by Lorenz.) The first thoroughly efficient mechanical appliance for reduction introduced by Mr. Bartlett, was employed in a large number of difficult cases with success and finally a careful study of the pathological anatomy of two children dying of contagious disease, before and after operation, made the pathology of the affection clear and the methods of treatment and their indications precise and definite.

At present it may be said that the deformity is an eminently curable one.

These cases can be divided into two classes: dislocated hips with an open, and with a narrow capsule. Originally in infantile cases, as is shown by pathological specimens, the capsule is open and loose, the head can be easily placed in or pushed out of the acetabulum. The defect consists in the absence or relaxed condition of the cotyloid ligament and zona orbicularis, which even in a full term foetus is strong enough to hold the femoral head in the socket.

After the child has walked upon the limb, as the body weight falls upon the capsular ligaments and not on the bone structure of the socket, the capsular ligaments become altered in shape and structure, the capsule extending to the upward displaced head is stretched across the acetabulum. In the older cases the capsule tissue becomes firm and resistant and the head can not be replaced in the acetabulum but is pressed against the drum-head-like tissue consisting of the capsule stretched across the acetabulum. The replacement consists in forcible widening of the narrowed capsular opening between the head and the acetabulum and stretching any obstacle which may oppose and pushing the femoral head into the bottom of the socket without folding the capsule in front of the head. To avoid the latter, the lower part of the capsule should be put under tension when replacement is attempted and to facilitate the reduction the head should be manipulated so as to press in the lowest portion of the acetabular rim (*i. e.*, behind and at the middle.) Shortened muscles can be stretched or relaxed by placing the limb in a flexed and adducted position. Forcibly abducting the flexed limb with pressure on the trochanter presses the femoral head against the tightened capsule and if favorably placed forces it into the socket.

In the cases with an open loose capsule little or no difficulty is encountered in the reduction; in tough, tense, and distorted capsule some force is needed. When the capsule is too firm and narrow to be entered by force, reduction by incision is necessary as the capsular contraction needs to be divided as in the reduction of an incarcerated hernia.

Reduction by incision is rarely needed in young cases, but in the more resistant cases, the procedure has resulted most satisfactorily. Forcible reduction can ordinarily be performed by manual manipulation under an anaesthesia, but in the more resistant cases, when much force is needed to stretch the capsule contraction, mechanical force is an important aid; first, to hold the pelvis firmly, second, to exert traction to stretch the capsule, and third, to apply forcible pressure, driving the head of the femur through the contracted capsule opening.

After the reduction the head should be held in place for a sufficient time for the capsule to form firmly about the femoral neck, that the head may be held in place. Plaster of Paris fixation for several months after a thorough reduction ordinarily ensures a cure which is permanent, as the Hospital statistics at the Children's Hospital have shown.

COSTUME DEFORMITIES.

The fact that growing bone could be altered in shape by pressure constantly applied was not unknown 40 years ago, but that the slight pressure of clothing could alter the shape of growing children was not realized. As is well known now definite faults in shape can be traced as a result of clothing. Round shoulders, weakened neck muscles, prominent clavicles, hollow chest, result from an overgreat drag upon the shoulders caused by the pull of elastic side garters attached to children's waists. Undue abdominal pressure from tight waists, corsets, weakens the abdominal, back and loin muscles. Growing girls should wear loose garments with no shoulder drag or abdominal constraint.

SHOE DEFORMITIES.

The extent of the deformities of the foot from shoe wearing is not generally realized, but a comparison of the baby's foot and that of an adult who has never worn shoes with the foot

of any individual who has worn even ordinary footwear since infancy will demonstrate the fact that the habitual compression of the foot, even only to the extent of the amount of pressure of what are termed comfortable shoes, causes muscular atrophy and the loss of normal muscular foot power. When "stylish" shoes are worn, compressing the front of the foot, or simply checking its proper spread when full weight and the exertion of the back drive of the foot comes upon it, the foot becomes in time distorted.

The foot placed firmly upon the ground, if a heel is worn on the shoe, tends to slide forward and this tendency is increased in the speed of walking. The front of the shoe is always narrower than the spread foot and the toes are necessarily crowded into this narrower space. The stiffness of the sole prevents normal toe flexion, and the fact that the upper is always fitted snugly to the dorsum of the foot to diminish wrinkling of the leather as the shoe is worn, hampers normal play of the foot and checks toe flexion. The stiff shank adds to the crumpling of the foot, and an unstretchable seam across the dorsum of the foot, pressing with a strong pressure on the dorsum of the foot, checking the sliding of the foot forward at each step, exerts a cramping pressure.

The result is that the foot which, as an implement of locomotion admirably adapted by the varying movement at its different articulations to the different conditions and activities of locomotion, is cramped for the greater part of the day in a firm and partially stiffened box.

The part of the foot which is the first to suffer is what may be termed the thumb action of the 1st metatarsal which is lost early. The flexion clutch of the toes, the spread of the front of the foot, muscular strength of the muscles of the sole of the foot and the adductor and flexor muscles of the toes all are impaired, crowding and crumpling of the smaller toes and hallux valgus, a flattening of the transverse arch are frequently developed and by the friction of shoes, bunions, corns, and exostoses. The development of static pes plano valgus usually known as flat foot is the most common result of shoe deformity and it may range from a slight functional weakness to a fixed deformity.

For the full details of treatment for the correction of these deformities and affections more space is required than can be furnished in this publication. That all these ailments, little understood thirty years ago, are entirely curable is well established. The most important element in treatment and in prevention is the removal or avoidance of the cause, viz., faulty foot wear. This indication is clear when it is known that these affections are not known among moccasin-wearing or bare-footed people, while extremely common among urban people with the more snugly fitting shoes. Young children, when it is not possible for them to be barefooted, should wear as much of the time as is possible moccasins or sandals and at all other times should be furnished with broad toed, loose shoes. Adults, when clumsy shaped, loose shoes are not feasible, should wear as much as possible as a rest to the foot, loose, flexible foot-wear. When walking, or using the feet a great deal, broad toe shoes should be used and conventional shoes only when the feet are not to be used actively.

Measures to strengthen the foot muscles, muscles of the sole and the correction of existing deformity are essential for a cure.

Stiff shoes, flat foot supports are to be regarded as temporary measures to prevent ligament strains. Faulty attitudes in standing and faulty use of the foot in walking are to be avoided by training.

STATIC AND ACQUIRED DEFORMITIES OF THE FEET.

A Children's Hospital does not offer adequate clinical material for a complete study of those acquired deformities of the feet which are more commonly seen in adults than in children. For a thorough understanding of the subject, however, a knowledge of the varieties of human gait and the normal action of the feet is of assistance. This is more readily studied in infants and children than in adults, as continued shoe wearing develops a more or less pathological condition.

An observation of a large number of children's feet shows that in the feet of even comparatively young shoe-wearing children a definite amount of loss of muscular strength is often produced in a majority of cases, together with toe crowding. Toe crumpling may be developed in stocking and shoe wearing children even when not more than three years of age. Investigation has shown that most acquired and static foot deformities (in cases not complicated by trauma, congenital defects or paralysis) are in reality shoe deformities. Investigation has also shown that the normal foot in infancy varies in shape (except as to the length of the second toe) according to race and is true to a type which it would appear has not changed since the prehistoric man.

Although these acquired deformities are much more common in adults than in children, no one can master the subject who has not familiarized himself with the shape and functional activity of the feet, both in shoe-wearing and barefooted children.

TREATMENT OF SCOLIOSIS.

The treatment of scoliosis forty years ago was both unscientific and clumsy to a degree that it could hardly claim a place in the proper domain of rational surgery characterized as it should be by knowledge, judgment, and good sense.

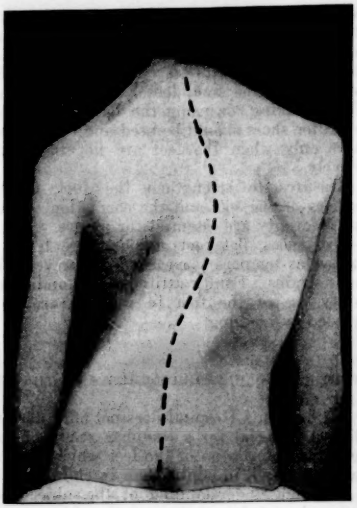


FIG. X.—Resistant lateral curvature in a girl of fourteen before treatment with plaster jackets.

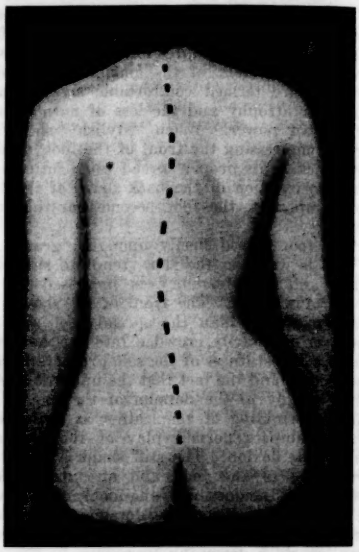


FIG. Y.—Case of scoliosis before application of brace.

The subject was clouded by ignorance as to the true nature of the affection, lack of thoroughness in the methods employed and a lack of definite purpose as to the result sought.

Much satisfactory earnest work has of late been devoted to the subject and it may be added that at present the treatment of scoliosis and spinal curves presents one of the most interesting and satisfactory problems in the field of surgery but one which differs from most surgical questions in that the cure can in no way be hastened by the use of the knife and the course of the affection before a definite cure is established is tediously chronic, involving months and years of observation, beside such time as is necessary for treatment. The affection being a vice in growth, a tendency to relapse exists in many cases during growing years and these years the spine may assume different degrees of variations of distortions according to the amount of resistance of the patient and the varying determining conditions. The resulting spinal curves may be classed as those presented by the weak backs, the curved backs and the twisted backs. The former is characterized by a constant drooping of the spinal column with exaggerated physiological or abnormal curves, which may be voluntarily corrected by the patient, with a tendency to relapse if the patient is tired or remains for any length of time in a sitting or standing position. In the curved backs this condition is complicated by some structural change in the tissue to such a degree that the patient cannot by voluntary effort correct the abnormal curve although in the milder cases these curves can be straightened by pressure of the surgeon's hands.

In the twisted backs the curves are complicated by a twist of the column due partly to the rotation of the individual vertebrae because the superimposed weight forces the vertebrae to twist to the side, as the spine is twisted sideways and partly because the strained ligaments become stretched and offer less resistance to the superimposed weights in one direction than in another, and partly because the muscles pulling on the ribs, the patient being in a curved attitude, twist the column abnormally.

The treatment must necessarily vary according to varying circumstances. Formerly, as it was difficult to control conditions for a sufficient length of time, the satisfactory results were not obtained and many surgeons frankly relegated treatment to gymnastic teachers as the only practical method to be advised.

As the conditions developing these deformities are constantly in the erect position, and as gymnastic exercise could only be practiced for a limited period, the benefit to be derived from gymnastics treatment was limited to the milder cases perhaps capable of improvement under better health conditions or freedom from constricting clothing or faulty school seating.

A step in the study of the disease, was a more rational comprehension of the pathology of the curves and twists. When it became clear that the curves result from changes in a spinal column unable to bear the body weight without yielding with the structural changes resulting

from this inability due to lack of general muscular tone or local weakness and lack of resistance of tissue, a more definite system of treatment became possible. The introduction of plaster jackets did away with the belief that treatment necessarily consisted in general spinal couches and heavy steel corsets, and induced energetic surgeons to turn their attention to the subject of correcting the distorted trunks. But before determining the best method of applying mechanical means to untwist the spine, it was necessary to demonstrate that a pressure upon the projecting ribs acted not simply on the costo-vertebral articulation but the vertebrae itself so that if the pressure were properly applied it could tend to correct an abnormal twist. This has been clearly proved by Dr. Soutter and Dr. Keene.

The effects of abnormal muscle and fascia pull has been carefully studied. Experiments in Germany and here have demonstrated that spinal curves could be developed in growing puppies if fixed for a few months by plaster of Paris bandages in a twisted position. Experiments here also showed the effect of superimposed weight in developing a spinal twist with vertebral rotation and rib prominence. The pathological changes in bones of curved spines has been thoroughly studied. Much study has also been devoted to the normal movement of the spinal column with the result that the informed surgeon is in a position to apply principles deduced from a series of well observed facts to the rational treatment of cases of spinal curve.

Whatever different theories may be presented as to the best methods in treating lateral curvature, all will agree that the whole treatment of structural scoliosis does not consist of or end in the correction of the curve.

Many surgeons have suffered the disappointment of finding a relapsed deformity after a complete correction or over-correction of congenital equinovarus and the probability of recurrence in a corrected curve and twist is even greater in lateral curves than in corrected deformities of the foot, for it is more easy to control the deforming conditions in the latter than in the former class of distortions.

Spinal curves dependent upon vices of growth due to static causes, faulty weight distribution, distorted muscular, or anatomical defect, will tend to recur during the growing years, until the tissues have gained in strength of structure sufficient firmness to prevent yielding to the ever-present force of superimposed weight.

There should therefore not only be vigilance in the inspection of such cases with accurate methods of recording observations at stated times, enabling the surgeon to recognize a threatened relapse, but also measures for the counteraction of such a tendency in an early and more manageable stage.

To apply corrective jackets for a few months or a few years, remove these and leave the patient to take chances of future normal growth, with only as protection from relapse a reliance upon occasional gymnastics and waist bindings, removable braces or jackets, can not be regarded as thoroughly scientific surgery.

Of the various ways of recording scoliosis, there are advantages in selecting one which can be accurately and quickly made, requiring no more skill than that furnished by an office attendant.

The glass plate tracing method offers the advantages of simplicity and accuracy, and can be obtained if a proper diopter is used, and the patient suitably fixed.

A transparent celluloid sheet set in a frame has the advantage of lightness over the glass plate; an ordinary, four post iron piping frame with side pelvis clamps furnished fixation with an inexpensive apparatus. An inexpensive diopter can be made by using a small wooden block, properly squared and of a size to be held in the hand, with a piece of tubing attached at one end. The surgeon looking through the tube of the diopter placed upon the upright transparent celluloid plate, close to which the patient's bared back rests, can carefully follow lines and contours without the error of change in the position of the eye, from a line vertical to the plane of record. If a pencil which can mark on glass is so placed in the block of the diopter that its marking point would strike the recording plate in the center of the inspection tube, an accurate record can be traced on the celluloid plate, from which it can be traced on tracing paper, and kept as a permanent record of contour lines of shoulder hips, the position of the points of the scapulae, and the line of the marked spines. A record of flexibility can be made if the patient with the shoulders are kept flat to the plate and the body bent sideways to either side, and the line of the marked spines traced.

The value of this flexibility test is greater than might at first be supposed.

An examination of a number of these indicates considerable variations in the flexibility of different parts of the column and enables the surgeon to determine the local increase or diminution of spinal flexibility under exercising treatment and hence beginning relapse, and the urgency of a need for the employment of measures to prevent stiffening at any special part of the spine.

Antero posterio curves need for this record a special means of tracing, for diopter tracing fails on account of the projection of the scapulae. This is obviated by using for the tracing of the back the method recommended by Wollenburg, by which the shape of the trunk as seen from the side can be noted.

The accuracy of these tracings by diopter has been abundantly demonstrated as well as the ease with which they can be taken.

It would appear that this method of testing the lateral flexibility of the spinal column is of use, enabling the surgeon to determine func-

tional defects in the spinal column not recognizable by the unaided eye, by the X-ray, or by photograph. An examination of a number of these records show a marked difference in lateral spinal mobility, which when not due to changes in bone structure, as is probable in many cases, though recognized with difficulty, indicates structural changes in the ligamentous and muscular tissue in different parts of the column, changes which can, in favorable cases, be overcome by treatment.

For recording rotation, various methods are offered for the surgeon's selection. The angle record, indicated in the accompanying illustration, is simple and the angle of rotation more easily noted than in the one more commonly used.

Photographs, pantagraphic records of cross sections of the thorax, are all of assistance, but the method mentioned has been found simpler and of satisfactory accuracy.

A record of the strength can be simply made without the employment of elaborate strength test apparatus. A record is kept of the number of times certain prescribed exercises (using dumb-bells of a certain weight) can be performed. This record can serve as a table and an index of increasing strength; multiplying the weight of the dumb-bell by the number of the exercising movements, a strength index can be noted. The exercises to be noted in such a record will vary with the spinal curve, and its muscular weakness. Recumbent dumb-bell exercises, using the movements frequently prescribed for the correction of scoliosis, will serve as a basis for a strength record as well as for systematic muscular development needed in the after-treatment of lateral curves.

The great difficulty in rational treatment encountered in cases of structural scoliosis,—is in the application of such means, as, after correction of the deformity, will prevent the assumption by the patient of faulty attitudes, without at the same time causing muscular weakness of the trunk muscles, and without being so unsightly or cumbersome as to prevent constant use for the long period needed in growing children. A rigid leather or celluloid jacket, or the ordinary back brace does not meet the complex stature conditions involved in faulty attitudes, where the surgeon with a moderate pressure of his hand can rectify a deformity, and yet hesitates to encase the trunk in a stiff corset binding the waist, necessarily weakening the muscles and inefficient in correcting rotation.

This difficulty is usually side stepped, the surgeon prescribing daily exercises, relying upon these for preventing relapse.

Exercises, however, can only be rigidly enforced for a comparatively short period each day, while the need of measures to counteract the static influences causing relapse, is in many instances constant when the patient is erect.

Various appliances have been devised, and none are entirely satisfactory,—an indication that the subject needs further investigation.



FIG. M.—Brace applied.



FIG. N.—Brace applied. Front view.

It is manifest that there is need of pressure and counterpressure in various directions, and that this pressure be as effective as possible it should be applied exactly where the curve extends toward the upper part of the spinal column. It is mechanically absurd to apply

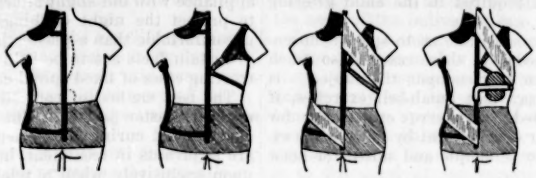


Fig. O.—Diagram illustrating check brace. 1. Showing steel upright side, crutch pelvic, and neck leather. 2. Same with shoulder strap. 3. Same with side correcting bands. 4. Same with rotation pressure pad.

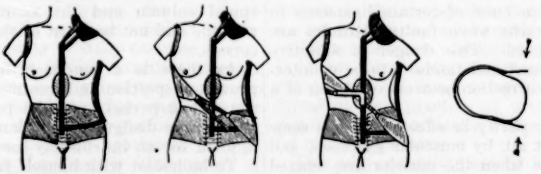


Fig. P.—Diagram of brace as seen in front with out-line showing points for rotation correction.

correcting pressure only or chiefly on the lower part of the trunk and where the column twists and it is desirous to check this. Any corset which twists with or around the trunk is inefficient.

It is better to frankly leave the patient to the correcting forces of nature than to use inefficient measures, which cause discomfort and even injure. But if the surgeon leaves scoliotic curves to chance, he must expect relapses in many cases.

It is of the first importance in a reliable check brace, meaning by this an appliance which will check a slump to faulty attitudes, that it should fit the pelvis at the hips, in order that it should not twist. This can be satisfactorily furnished if a cast is taken, and leather is stretched around such a cast. A base for counter-pressure, both lateral and diagonal, is in this way furnished, and the tendency to slip around the trunk checked.

A leather collar can be moulded at the neck for the upper point of counter-pressure, extending down to the shoulder, but, as this has a tendency to project with the patient's movement, it is better to rely upon a strap for counter-pressure, where it is important to avoid unsightliness or a conspicuous brace. A steel rod connecting the upper and the lower points of counter-pressure serves to furnish a line for lateral pressure. This should be secured to a cross-band attached to the leather around the pelvis, and should be stiff enough not to twist.

A light steel crutch, reaching from the pelvis to the axilla on one side, prevents the riding upward of the brace, and checks the patient's tendency to drop a shoulder.

Points for counter-pressure being furnished at the neck and pelvis, side correcting pressure is needed upon the ribs at the region of greatest deformity. This can be arranged by a broad strap fastened to the steel upright at a desired point; can if secured by a strap to the pelvis leather be made to exert any desired amount of counter-pressure.

Where one shoulder is held high with projection of the scapulae, this can be checked by means of a shoulder strap, which passing around the back uprights is secured in front, pulling the shoulder back and down.

In front the neck and the pelvis leather should also be connected by a steel upright to give steadiness, and, if furnished with a leather pad, can be made to exert pressure upon the front projecting ribs.

In a majority of such cases, it is also necessary to check rotation of the ribs. This must be done by pressure, exerted in such a way that it will not also compress the flattened parts of the chest.

Cross steel straps attached to the uprights and furnished with pads can be arranged like a clamp to press upon the projecting ribs without crowding the depressed portion of the trunk.

An appliance of this character needs careful adjustment at first, but can be regulated by the patient or nurse, and does not interfere with activity, and is not noticeably disfiguring. It will prevent the patient's tendency to slump into a faulty attitude. As it is removable, it can be worn only for such a portion of the day as is necessary to correct the greatest tendency to slump, or it can be used constantly, removed only during the gymnastic period. It furnished the maximum amount of pressure with the minimum amount of injurious muscular constriction.

As there is comparatively little objection on the part of the patient to a light apparatus of this character, correction can be employed as

long as may be required in the child growing period.

Little need be said here as to special muscular exercises needed in these cases as so much has already been written upon the subject. It is sufficient to say that bumb-bell exercises, if properly directed, can serve excellently for special muscular development by daily home exercises; they can be simple and suited for home direction.

Something more than muscular exercises and check braces are needed in the more obstinate of these cases.

A constant tendency of certain ligaments to lose elasticity exists when faulty attitudes are constantly assumed. This danger of adaptive change in ligament and fascia is to be counteracted by daily correction or over-correction of a faulty curve.

This can only partly be effected, and in some instances not at all, by muscular exercises, and should be made when the muscles are relaxed in order to overcome muscular resistance. Correction of this sort must be accurately applied, and should be of such a character that it may be made a part of the daily home routine.

An arrangement indicated in the accompanying illustration will be found to have certain advantages for home correcting exercises.

It consists of an oblong piping frame with cross cloth straps for head, shoulder and pelvic rests for the patient, who kneels head downward in the frame; side straps with weight pulls to keep pelvis and trunk in a correcting direction, and by means of a lever with pressure attachment the twisted thorax can be over-corrected at any desired section. The amount of correcting pressure can be easily regulated.

This arrangement for daily correction can be used also in the application of corrective plaster jackets, and it will be found of advantage for this purpose in many cases, especially in the higher curves.

The avoidance of conditions favoring faulty attitudes is advisable in the after treatment of spinal curves, corrected, or in the earlier stage of development.

The avoidance of sitting for long periods without the interruption of a period of active play, the enforcement of a period of flat recumbency or the prone position to rest the back muscles, serve as an aid to prevent a habit of faulty attitudes. Lounging in large, or deep, or broad seated chairs, is to be avoided, as it favors a twisted attitude. Expensive, especially made chairs, are not necessary. A narrow seated stool or chair with proper attention to the length of the legs can answer for study or any occupation requiring a seated position for some time.

Night corrective appliances are as a rule not necessary for cases of structural scoliosis after the stage of plaster-of-Paris correction, nor in the slighter flexible cases. If this is not the case, the appliances mentioned can be worn as a night appliance with but slight alteration and padding to protect the night clothing. It is not more uncomfortable than a plaster jacket.

Certain facts are to be held in mind by those treating cases of fixed spinal curves.

The best method of correction is by properly applied plaster jackets. But correction of the curve is not curing the patient and gymnastics are adjuvants in treatment, but not to be relied upon exclusively when a relapse is threatened.

Check braces are of assistance if they prevent slumping and faulty attitude. Such braces should be efficient and prevent slumping of the spinal column and the assumption of faulty attitude and not be waist or thorax compressing corsets.

As there is a tendency to relapse during growth, inspection and treatment may be needed for a long period. As the patient has rights, ugly, heavy disfiguring appliances should not be applied for an indefinitely long period.

To be honest with himself the surgeon should in watching the most chronic of surgical ailments keep accurate records and measurements of contour, flexibility, curve and rotation to enable him to detect relapse definitely and to note gain positively.

PLASTER OF PARIS JACKET CORRECTION.

Sayre's plaster of Paris jacket proved of unestimable value in the treatment of caries of the spine, but the benefit obtained in scoliosis from head suspension and plaster jackets applied in this position was not so marked; but it has been abundantly demonstrated that a steady pressure correcting and constantly applied will correct curves in scoliosis and that a properly applied plaster jacket furnishes a suitable means for such pressure.

Various methods have been suggested for the suitable application of jackets, and as the curves vary considerably, difficult methods of application will be needed.

Manifestly the maximum of endurable pressure should be exerted upon the convexities in the trunk while no pressure should be placed upon the hollows, which will gradually expand in respiration if freed from pressure while the rest of the chest is compressed.

The best method of application of plaster jackets are those giving the patient the least discomfort, the surgeon the greatest convenience, while placing the patient in such a position that correction will not present unnecessary obstacles, *i. e.*, the patient should be recumbent rather than standing, that the superimposed body weight should be eliminated as a factor. Whether the best position is with the patient upon the back, face or side, depends largely upon the seat of the curve, high dorsal, low dorsal; lumbar; in the higher curves a position upon the face seems preferable and in the lower upon the back, in the higher curves the jacket

should reach above the shoulder on the side of the dropping shoulder.

The writer has found the kneeling position of service, the shoulders and pelvis being fixed with side pressure correcting curves and strong pressure upon the most prominent part of the deformity with counter-pressure arranged as needed.

No difficulty is met with in providing any amount of correcting pressure; the patient's endurance is the limit of feasible application.

Removal jackets are much less effective than permanent ones as means of correction, but they become necessary where the maximum amount of correction has been reached to prevent muscle weakening by daily exercise.

Removable leather jackets exerting constant correcting pressure, and light supporting braces are effective but not disfiguring, and worn for a long time make with proper gymnastics a systematic treatment possible, continued through the growing years if necessary. The nature of the treatment will depend upon the progress of the case which can be determined by careful records. It is to be remembered that while the bones of the spinal column are lacking in resisting structure and bear the superimposed weight of the body and while faulty attitude persists either from an anatomical defect or from habit or muscle weakness, after correction of curves, recurrence must be guarded against.

A KNOWLEDGE OF THE USE OF APPARATUS.

An obstacle to the more general study of the special branch known as orthopedic surgery has been the need of readiness and skill in the prescribing and applying suitable apparatus. This is not absolutely necessary in practice.

The surgeon can correct deformities by operative measures or by the use of plaster of Paris bandages, and be entirely independent of the instrument maker. At the same time in a large number of cases better results can be obtained as in other branches of surgery if the orthopedic surgeon is thoroughly familiar with the best implements for the readiest accomplishment of certain desired results.

The first essential in an apparatus is that it should be efficient, *i. e.*, that it should meet the mechanical indications in the most direct and thorough way.

The second requirement is that it should be as comfortable to the patient as possible.

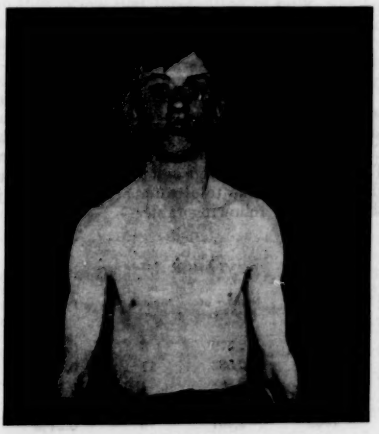
A third, that it should be simple and readily applied by the attendant, nurse, or mother.

Great improvement has in the last 30 years been wrought in the simplification of appliances and at present the experience in our hospital clinic, where the orthopedic appliances used are made under the surgeon's direction, will give the necessary knowledge.

A surgeon, however, who has not mastered the details is as poorly equipped in his art as an artist who has not mastered his palette. The surgeon needs to be able to adapt apparatus to the need of the individual case.

In practice there is a natural tendency at a large clinic to neglect the careful use of appliances, which require some experience and skill, and to rely on the use of plaster of Paris bandages, the application of which are often relegated to a subordinate, or are more easily applied than is the case with apparatus. There is to the mind of the surgeon, as ordinarily trained, a prejudice against the use of apparatus with joints, straps, and buckles. This prejudice is not only unfounded but based largely on the supposition that a knowledge of the use of appliances is something which is with difficulty acquired. Although plaster of Paris bandages have many advantages they are not without marked disadvantages, and no one undertaking the practice of orthopedic surgery should fail to familiarize himself with the careful use of appliances.

The early establishment of a shop in direct connection with the Hospital with workmen under the control of the surgeon proved of great advantage in the treatment of deformed children at the Children's Hospital.



No. 44.—Torticollis, right.

Driscoll, age 5. Date of admission, Aug. 28, 1896. Date of discharge, Sept. 3, 1896. Duration, 3 years. Since birth. Operation, Aug. 28, 1896. Incision, myotomy, plaster. Result 10 years later.

A retrospect like this would be incomplete without a few words as to the probable future of orthopedic surgery as a specialty. It was certainly justified itself in the past by its record of advance in the care and better treatment of a considerable number of affections previously regarded as practically incurable or treated with great difficulty. But the question is pertinent whether in the future the prevention and

cure of deformities will not form a part of the work of the general surgeon. Specialization is to be condemned unless justified by definite reasons; surgery is surgery-healing by means of the skilled hand. But there is a great difference in the skill needed by the operator who attempts to overcome a disease by a surgical feat and that required in the management of cases where special treatment is needed, for months or even years, before, after or in place of an operation. It is doubtful if any surgeon can become a leader in both fields at once. Orthopedic surgery will, it would seem, retain its place as the surgery of chronic cases.

Ambroise Paré is right in his famous saying,—that the surgeon was but a dresser, as healing was in the hand of the Deity; but in correcting deformity, the surgeon must often match his skill against an errant nature, using the laws of growth against the faults of growth.

VI.

INFANTILE SCORBUTUS.

BY JOHN LOVETT MORSE, A.M., M.D.

THERE has been a rapid and progressive increase in the number of cases of scurvy coming to the Medical Out-Patient Department of the Children's Hospital during the last four years. This increase has been not only absolute but also relative to the total number of cases, as is shown by the following table:—

TABLE I.

Year.	Number of New Cases.	Number of Cases of Scurvy.	Percent.
1904	2,579	3	0.11%
1905	2,533	11	0.43%
1906	2,288	4	0.17%
1907	2,075	7	0.33%
1908	2,407	6	0.24%
1909	2,062	5	0.24%
1910	2,311	11	0.47%
1911	1,967	12	0.61%
1912	1,932	13	0.67%
1913	2,416	21	0.87%

An analysis of the foods taken by the babies suffering from scurvy during the last ten years was then undertaken to determine, if possible, the cause of this increase. The data in the records were, unfortunately, in many instances, incomplete. The food taken by these babies at the time of the appearance of the first symptoms of scurvy is shown in the following table. No data as to the food was given in the others.

TABLE II.

Condensed milk mixed with water or gruel	4
Proprietary foods mixed with water	14
Proprietary foods mixed with milk—raw	1
pasteurized	1
boiled	7
no data as to heating	7
Proprietary foods, no data as to milk or heating	10
Milk, plain, diluted with water or cereal diluents, or modified—pasteurized	5
boiled or scalded	23
no data as to heating	14
Breast-fed	3
Total	89

A summary of the above figures shows that 18, or 20%, were fed on "stale" foods, that is, condensed milk or proprietary foods mixed with water. 44, or 50%, were fed on either proprietary foods or condensed milk. In the 37 cases in which milk was used either with or without proprietary foods and data given as to whether it was heated or not, the mixture was given raw in one, or 3%; pasteurized in six, or 16%; boiled, scalded or sterilized in 30, or 81%. It is probable that the milk was boiled in at least one-half of the other cases in which milk was used with proprietary foods, because the directions on the can containing the food used in these cases call for boiling. It is also probable that in a considerable proportion of the cases on modified milk prepared at milk laboratories the mixture was pasteurized.

It would appear from these figures that proprietary foods, "stale" foods and the heating of milk to the temperature of pasteurization or higher, may all play a part in the etiology of scurvy. The fact that three cases developed in babies taking only breast-milk shows, however, not only that no one of these can be the exclusive cause, but also that there must be some other cause. The most striking fact in these figures is, however, that 54 of the 58 cases, or 93%, in which there are data as to the "freshness" of the food, were fed on foods which were not fresh, that is, containing either no milk or cooked milk.

It was thought that a comparison of the feeding of the individual infants in a year at the beginning of the investigation and in the last year might show something as to the cause of the increase in the frequency of the disease. The following table shows the foods taken by these babies in 1905 and 1913.

TABLE III.

1905.

1. Mellin's Food. No data as to milk or heat.
2. Modified milk. No data as to heat.
3. Modified milk. No data as to heat.
4. Malted milk. No data as to milk or heat.
5. Mellin's Food mixed with condensed milk and water.
6. Sterilized milk, shredded wheat, oatmeal, barley.
7. Condensed milk and oatmeal gruel.

8. Malted milk and barley gruel.
9. Malted milk and water.
10. Mellin's Food with milk and water. No data as to heat.
11. Breast.

1913.

1. Modified milk. Boiled.
2. Modified milk. Boiled.
3. Modified milk. Heated. Temperature not given.
4. Milk and water. Boiled.
5. Milk. Boiled.
6. Nestle's Food. No data as to milk or heat.
7. Modified milk. No data as to heat.
8. Milk and barley water. Sterilized.
9. Mellin's Food, milk and water. Made with pasteurized milk.
10. Condensed milk.
11. Eskay's Food, milk and water. Boiled.
12. Milk and water. Boiled.
13. Eskay's Food, milk and water. Boiled.
14. Breast.
15. Modified milk. No data as to heat.
16. Milk and water. Boiled.
17. Modified milk. 155° F.
18. Mellin's Food, milk and water. Boiled.
19. Milk and barley water. Mixed hot.
20. Modified milk. Made from pasteurized milk and boiled.
21. Milk and water. Scalded.

It appears from these figures that the proportion of babies fed on the proprietary foods in 1913 was much smaller than in 1905. It hardly seems reasonable, however, to draw the conclusion from this fact that babies fed on milk are more likely to develop scurvy than those fed on the proprietary foods. It seems more reasonable to suppose that something was done to the milk in 1913 that was not done in 1905. It is striking that boiling of the milk was very common in 1913. Unfortunately, the data as to the heating of the milk in 1905 are very incomplete, so that a comparison is impossible. The number of cases is, moreover, too small to justify any conclusion.

The disproportion between the number of cases fed on raw milk and heated milk and the great preponderance of cases fed on heated milk in 1913 suggested strongly that the heating of milk might play an important part in the etiology of scurvy. It also raised the question whether the large number of cases on heated milk in 1913 was simply a coincidence or whether there was some general factor of heating present in 1913 and not existent in 1905. It was thought that such a factor might be found in the more general pasteurization of the milk supply of Boston in recent years. There has been a rapid increase in the amount of pasteurized milk used in Boston during the last few years, as is shown by the following table:—

TABLE IV.

Year.	Percentage of Milk Pasteurized.	
1908	33.58	
1909	30.68	Approximate; probably too low.
1910	63.50	
1911	73.02	
1912	70.59	Approximate; probably too low.
1913	80.00	Estimated.

A comparison of the percentage of milk pasteurized in Boston and of the percentage of cases of scurvy to the total number of cases coming to the Medical Department of the Children's Hospital during the last ten years is instructive and suggestive.

TABLE V.

Year.	Percentage of Cases.	Percentage of Pasteurized Milk.
1904	0.11	
1905	0.43	
1906	0.17	
1907	0.33	
1908	0.24	33.58
1909	0.24	30.68
1910	0.47	63.50
1911	0.61	73.02
1912	0.67	70.59
1913	0.87	80.00

The figures given in this table do not, of course, prove positively that there really has been an increase in the number of cases of scurvy in the community during recent years or that, if there has been such an increase, it is due to the introduction and progressive increase of the commercial pasteurization of milk. Neither do they prove that the heating of milk, whether to the temperature of pasteurization or boiling, has anything to do with the etiology of scurvy. They do suggest, however, that there may be some such connection and justify further study of the subject on a larger scale.

Symptomatology. An analysis of the symptomatology of these cases was undertaken, but was not very satisfactory because of the meagerness of the records in many instances. The results of this analysis are given, however, for what they are worth.

The first symptom noted was:

Crying on handling	69
Paresis	11
Swelling of legs	5
Abnormality of gums	2
Ecchymoses	1
Bloody urine	2
"Failing"	1
Condition discovered at Hospital	2
Total	93

The following symptoms were noted at the examination, or were given in the history of the patient. They are undoubtedly incomplete, but presumably show something as to the relative frequency of the different symptoms.

Tenderness of the legs and crying on being handled	93
Swelling of legs (thighs 10, lower legs, 15)	25
Swelling of the arms	3
Loss of power in legs	20
Rigidity of legs	15
Inflammation of gums	37
Discoloration of urine or staining of diapers	6
Swelling of eyelids	1
Ecchymosis of eyelids	1
Ecchymoses	9

Errors in Diagnosis. The diagnosis of inflammation of the joints had been made in one of these cases, of fracture of the thigh in another, and of tuberculosis of the spine in still another. These figures do not give a correct impression, however, as to the frequency with which this disease is overlooked or mistaken for some other condition. This disease was recognized by the attending physician in but four of thirty-seven cases seen by the writer in consultation or at his office in the last five years. It was overlooked entirely in twelve, while the following diagnoses were made in the other cases:—

Rickets	1
Rheumatism	4
Injury to spine	1
Disease of spine	1
Diphtheritic paralysis	1
Infantile paralysis	3
Acute nephritis	5
Tuberculosis	1
Teething	1
Injury to leg	2
Inguinal hernia	1

It is evident, therefore, that in spite of all that has been written and said about infantile scorbutus during the past fifteen years, there are still many physicians who are not familiar with the disease or who, if they know of it, are unable to recognize it. A campaign of education is, therefore, necessary, especially in view of the fact that the disease is apparently on the increase.

VII.

INGUINAL HERNIA IN CHILDREN.

BY JAMES S. STONE, M. D.

In the Children's Hospital since the establishment of the Surgical Service, 1019 cases of inguinal hernia have been operated upon.

This paper is based upon a study of these cases; the purpose being to present broad conclusions. Details of cases and details of treatment are given solely with the purpose of making the conclusions clear and of emphasizing points more commonly seen in children than in adults.

Etiology. It is today generally recognized that certainly in children the existence from birth of a patent sac is the common cause of hernia. The evidence of this congenital origin of inguinal hernia rests mainly upon the anatomical conditions which are practically invariably present. The structures of the cord, the vas and vessels, lie spread out upon the posterior surface of the sac and most intimately connected with it. In girls the anatomical conditions are practically always analogous to those found in boys. The round ligaments and the vessels lie spread out upon the posterior surface of the hernial sac.

The frequency with which a small hernial sac is found in association with a hydrocele of the cord is also evidence of the congenital origin of hernia. Instead of a sac patent from the peritoneal cavity to the tip there has been an obliteration of the sac at one or more spots. Very frequently indeed there is at one or more places in the sac a partial obliteration with the formation of a fibrous ring, often very adherent to the surrounding structures of the cord. Such conditions could not possibly be produced by the pushing out of a sac by any intra-abdominal force.

Confirmatory evidence of the congenital origin of hernia is found in other facts.

First. A very large majority of all cases occur on the right side. The left testis descends first and farther than the right. Thus there is a longer time and better opportunity for obliteration of the funicular process on the left. The patent sac is more common on the right.

Second. The sudden appearance of a hernia without adequate cause unless there existed a sac ready to receive the hernia. This condition is very common in both children and adults.

Third. The readiness with which a hernia at times develops the moment that for any reason fluid accumulates in the peritoneal cavity, while in other cases fluid can be present for months without the development of a hernia. In the one instance the fluid finds its way into and distends an existing sac. In the other instance the pressure of the fluid is not sufficient, although acting like a hydraulic press, to cause any yielding of the canal.

Fourth. The finding at autopsy or at operation for other conditions of a patent but empty sac.

If hernia is due to the existence from birth of a patent sac, the obvious question is why does the sac frequently remain empty so long. It may be so for months or years, even to adult life. In order to have anything enter the sac three conditions must exist simultaneously. First, there must be a relaxation of the muscles which naturally guard the entrance to the sac. Second, the other muscles of the abdomen must be tense in order to push anything into the sac. In the third place there must be something opposite the entrance to the sac able to pass into it.

It is most unusual to have some of the abdominal muscles tense and others relaxed. Hence the first two conditions seldom coexist. The third condition is more readily obtained, but is still important. A distended loop of bowel would not enter the sac readily. Neither would a flat portion of the omentum. A tab of omentum might easily enter. Fluid always enters readily. Much of the intestine has a mesentery

so short as to prevent it from entering a hernial sac.

Though almost all cases of hernia in children are due to the existence from birth of a patent sac it seems probable that other factors must be recognized, which apply both to children and adults. In infantile atrophy and frequently in old age there is an absorption of the fat which normally fills up the inter-spaces between the surrounding muscles and the tissues passing through the inguinal canal. There is at the same time an associated weakening of all the muscles, including those which guard the entrance to the inguinal canal. Any straining will under these conditions gradually push down a hernia. A hernia may occasionally be seen to develop in an atrophic baby, and the same thing may be seen in old age. The loss of the fat has given a point of vantage for the development of a hernia.

There remain some cases in which a hernia may develop gradually in strong individuals as a result of hard muscular work; the yielding of a weak point. There have been no cases seen in children in which this seems probable. It may explain the frequency with which men lifting and handling heavy and bulky objects have hernia.

In reviewing the histories of patients no special diseases seem to have any influence in causing hernia.

Diagnosis. In adults the existence of the tumor is the usual basis for the diagnosis. When not present the impulse on coughing, especially when the finger is inserted within the inguinal canal by invaginating the scrotum, is the common basis for diagnosis.

In children conditions are wholly different. Often the tumor makes the diagnosis perfectly obvious. Frequently, however, the mother has seen a tumor which at the time of examination is not present. In making the diagnosis of hernia one must first make sure that the testes have descended. If they are normal and the hernia is not down the diagnosis then must rest absolutely on the detection of the hernial sac. If it is present there is a potential hernia, and presumably the tumor noticed by the mother was a hernia.

In children little can be learned by invaginating the scrotum to get the finger into the canal. The testis frequently retracts above the finger. The canal is usually small unless the hernia has descended frequently and thus stretched it. The presence of the sac is to be determined by touch. On each side the structures of the cord are to be felt; the vas and the vessels. On each side they are ordinarily of approximately the same size. In cases of hernia the empty sac must be felt. The sac adds little to the size of the cord, but materially alters the feeling of the cord.

If the middle finger is held flat directly over the external ring parallel with Poupart's ligament, and the skin is then gently slid from side to side toward Poupart's ligament and away from it, the cord, including the vas and vessels, and the structures which enclose them, may readily be felt rolling under the finger. If there is no hernia the cords feel alike on each side. If there is a hernia on either side the sac is to be felt in addition to the cord. The feel of the sac rolling under the finger is to be compared to that of a small thin wet rubber finger cot. Something smooth and slippery rolls under the finger in addition to the vas and the vessels. The feel of the mass of veins of the cord is somewhat similar to that of the sac, but practice readily enables one to differentiate the two. One should feel in this way for the sac with the patient standing in case it cannot be felt while lying down. Standing frequently allows a little fluid to enter and distend the sac. In trying to feel the sac in this way the position of the finger held constantly flat against the abdominal wall is important.

Differential Diagnosis. In adults variocele and hydrocele are the tumors which must be differentiated from hernia. In children variocele is almost unknown. In one case the diagnosis of variocele was made. The mass was an adherent omental hernia. Variocele may follow a too tight operative closure of the canal. Hydrocele of the tunica vaginalis is not at all uncommon in infancy. It often exists at birth, frequently disappearing within a few months without special treatment. There is no reason for a mistake in diagnosis. As in adults the tumor is translucent. It is painless unless due to injury or infection or unless the tension is extreme. But the essential diagnostic feature is the absence of any direct connection other than the normal cord between the swelling in the scrotum and the peritoneal cavity. Encysted hydrocele of the cord is, however, very common indeed in children. It is in differentiating hydrocele of the cord from hernia that the greatest difficulty arises. While the difference is often of relatively slight practical importance, yet mistakes made are often very annoying.

Hydrocele of the cord may be unilocular or multilocular. It is usually associated with a hernial sac, frequently very small. The more carefully the cases are observed, both clinically and at operation, the more often does one find that the hydroceles are multilocular and that there exists also a hernial sac.

The most reliable means of distinguishing hydrocele of the cord is the ability to grasp it and move it up and down and from side to side without the restraint which would be inevitable were there anything beside the cord and vessels which connected the mass with the abdominal cavity.

A hydrocele of the cord which has retracted within the canal cannot be differentiated from a hernia unless it is drawn downward suffici-

ently to get a finger above it and find no abnormal contents of the canal.

There have been a few instances of suppurating hydroceles of the cord. The tumor in such cases resembles closely an abscess originating in a lymph node. On the other hand the location of the tumor is distinctly along the inguinal canal rather than just outside it along the course of the lymph nodes. The history of such a tumor is different from that of a bubo. The mass may have been noticed along or outside the inguinal canal for some time, giving no particular trouble until inflamed.

The differentiation between such a mass and a gangrenous strangulated hernia must be made on general grounds. The absence of the intestinal obstruction and of the profound shock which accompany such a hernia are sufficient.

On the other, hand, in these cases there is a distinct danger from the suppurating hydroceles of the cord. Very often the partition between the hydrocele and a hernial sac above it or between the hydrocele and the peritoneal cavity is an extremely thin membrance. The risk under such circumstances from rupture internally and peritonitis is obvious.

It would seem at first sight as though hydrocele of the cord which was suppurating would heal completely if drained and packed. Obviously no other treatment is wise at the time. On the other hand, the hydroceles are often multilocular and often associated with hernial sacs. It is therefore wise as soon as the inflammation has subsided to examine carefully to determine the presence or absence of other hydrocele sacs or of a hernial sac. Then the choice may be made of a radical operation or of waiting for symptoms to arise.

Undescended Testis. In children, especially in those under eight or ten years of age, it is necessary to define exactly what is meant by undescended testis. The extreme mobility of the testes in infancy and early childhood must be recognized.

In a great many instances children are brought for an operation because the mothers, never the fathers, think they are not quite properly developed. In many the testes are of normal size and may be either just within or just outside the external ring. The scrotum is empty. If search for the testis is made from below upward it recedes out of reach within the inguinal canal. In such cases, and whenever there is any doubt, the examiner must always begin by making firm pressure at a point over the inguinal canal just above the external ring. In this manner the testis if in the canal is felt, and if outside the canal is held there by the pressure of the finger so that it may be grasped from below with the other hand. If the testis is felt in the canal it may frequently be pushed downward with the finger and then grasped from below. No testicle which can be drawn or pushed down into the scrotum is to be regarded as undescended. No such testis requires treatment unless under most exceptional circumstances.

Occasionally if extremely retracted the testis may become more or less pinched. Thus there may be sufficient irritation to cause continued spasm of the cremaster muscle and long continued retention of the testis high up toward if not within the inguinal canal. Considerable pain in the inguinal region may result. The testis thus held tight within the canal may become slightly tender. Rest in bed for a few days relieves such a condition. A testis thus strongly retracted may be drawn within the abdomen. In the same manner a normal testis may be pushed back into the abdomen in childhood. In one instance a normal testis so pushed back by the patient never descended again.

Treatment. It has become the rule of the hospital to advise operation in practically every case. Palliative treatment holds back a hernia. It does not effect a cure.

The obliteration or the excision of the hernial sac is the essential factor in a cure. On this fact are based the dangerous and uncertain methods of treatment by the injection of chemical irritants.

In many instances after prolonged use of a truss the hernia does not again appear. But the longer these patients are followed and the more carefully they are studied the fewer become the cases in which one finds that the hernial sac has become obliterated. While the sac remains patent there is always a potential hernia. The risk of such a potential hernia depends upon the proximity to skilled surgical aid in case of need.

As the children are brought to the hospital the practical question which arises is whether there is any contra-indication to operation. If any exists some form of truss is advised. If there is no contra-indication operation is advised. Largely on account of the lack of beds for infants operation is usually performed after the child is two years old. But entirely independent of that consideration unless special reason arises operation is not usually advised until after the babies are weaned and have a good start in life. The risks from operation, slight as they are, seem less in the older children.

Palliative Treatment. In patients waiting for operation or in whom operation is inadvisable the worsted truss is ordinarily advised unless the child is over three years old.

The advantages of the worsted truss are that while almost always efficient it cannot exert injurious pressure. It can be washed. The baby can be put in the bath with the truss on. When the baby is dry and quiet the wet truss may be replaced by a dry one and the one removed may be cleaned and dried for use again.

The method of application is of considerable importance. The skein of yarn is so placed that one end of the loop comes directly over the ex-

ternal ring. The other end is then carried outward around the affected side, brought behind the back above the buttocks and then forward across the abdomen to be passed through the loop placed over the external ring. The free end is then carried under the tuberosity of the ischium of the affected side and brought upward to be tied at a point over the sacro-iliac joint to the skein as it crosses the back. The location at which this tie is made is important. If too far out flexion of the thigh loosens the truss. If too near the median line the worsted slips between the buttocks, irritates the parts and becomes dirty. At the sides the worsted passes above the great trochanter and below the crest of the ilium.

Usually one skein of the white Germantown yarn is used. Less is seldom sufficient. More may be needed in a hernia hard to hold back. A skein may be applied to each side in cases of double hernia.

Operative Technique. The incision, seldom over an inch and a half long and often less, is made parallel with Poupart's ligament, and with the center directly over the upper angle of the external ring. The position of the external ring should always be located by touch just before the cut is made.

The first possibility for error lies in confusing the deep fascia and the aponeurosis of the external oblique muscle. They are always separated by a distinct layer of fat. The fascia, owing to the fat beneath it, is much more readily lifted up with forceps than is the aponeurosis, which is intimately connected with the underlying muscles. After the surface of the external oblique is cleared there is no difficulty in recognizing the external ring—if in no other way, by the intercolumnar fibres running across the upper outer end.

If, however, the incision is a little too near the median line, the hole in the aponeurosis through which the ilio-hypogastric nerve passes is exposed, and if large may be mistaken by an inexperienced operator for the external ring. Thus misled, the search for the sac may be carried down near the lower end of the semilunar line. In one patient whose hernia had not been cured at first, a second operation showed the inguinal canal untouched, while the scar was found in the region mentioned.

The anterior surface of the aponeurosis should be neatly cleaned of fat and cellular tissue. Then the canal is exposed thoroughly by slitting the aponeurosis of the external oblique upward and outward in the line of the fibres as far as the place where the edge of the internal oblique and transversalis muscles spring away from Poupart's ligaments. Care is necessary to avoid cutting the ilio-inguinal nerve, which usually lies directly beneath the line of the incision in front of the cord and its coverings. The nerve is not to be confused with the vas, which practically invariably lies among the vessels on the posterior surface of the sac.

Before more is done the under surface of the split aponeurosis is separated on the inner side from the underlying internal oblique muscle and on the outer side from the cremaster muscle and cellular tissue down to Poupart's ligament. The cremaster muscle lies exposed in the bottom of the wound. It should be seized with two pairs of forceps at the lower central part of the canal and drawn downward and inward. The fibres are thus put upon the stretch, and may readily be split down to the sac or the fibrous tissue surrounding it. Thus the most readily isolated upper middle part of the sac is exposed first.

In dissecting the sac free from the surrounding tissues one should invariably get down to the peritoneum before attempting to separate the surrounding tissues. When the peritoneal layer is reached it has a definite blueish color. If fibrous tissue still remains the color is more white. If the peritoneal layer of the sac is reached the other structures of the cord are readily separated. If dissection with gauze is used great care is necessary not to put any tension on the delicate vas deferens. It may be torn if stretched by careless dissection.

If the dissection is kept close to the peritoneum no blood vessels need be injured. The vas should not be touched directly. Extreme care is necessary to avoid any handling of either testis or epididymis. Ecchymosis or oedema of the scrotum does not occur in cases in which care is taken to keep absolutely to the peritoneal layer in dissecting free the sac.

Swelling of the testis or epididymis does not occur unless these structures or the vas have been roughly handled, or unless gauze or something rough has come in contact with the serous surface of the testis.

The chief hindrance to easy dissection of the sac lies in the frequent occurrence of fibrous rings adherent to the surrounding tissues; places at which there has been a partial closure of the funicular process. The sac is to be freed until it becomes somewhat fibrous in the region of the internal ring, which usually is an imaginary structure, and until the extra peritoneal fat is reached. The empty sac, drawn strongly out, is perforated at the neck, tied in each direction and cut away. The stitch, still attached to the stump of the sac, is then drawn out into view. With this as a guide the needle on the stitch follows the stump of the sac as it is allowed to recede behind the internal oblique and transversalis muscles. The needle is then brought out through these muscles and through the aponeurosis of the external oblique at a point slightly above and to the inner side of the upper end of the slit in the last structure. Thus the puckered peritoneum at the neck of the sac is drawn up behind solid muscle, while smooth peritoneum is stretched across

the region of the canal. The stitch is temporarily laid aside.

Usually three interrupted stitches are then placed to unite the borders of the internal oblique and transversalis muscles to Poupart's ligament. They are all placed in front of the cord. Thus the length and breadth of the canal are decidedly decreased. The angle between Poupart's ligament and the edge of the muscles at the inner side of the canal is frequently wide, especially in a hernia of long standing. This angle is of course at once closed by the operation.

For many years the cord has not been transplanted unless for some special reason. In the Bassini operation, with transfer of the cord and vessels, relapse was rare, but when it did occur it was always at the upper angle of the old inguinal canal, the point at which the cord and vessels were brought forward through the deeper part of the abdominal wall. Those who still transfer the cord usually guard against relapse by passing one stitch above the cord and vessels. They do not carry the lesson taught by relapses to its logical conclusion.

Operative Complications. Certain complications have arisen during operation. In girls with ovaries which have descended into the canal the ovarian vessels must first be separated from the sac, as in an ordinary hernia, and then after excision of the sac the ovary and its vessels must be either sufficiently freed to permit their replacement en masse within the abdomen, or in case the vessels are too intricately connected with the walls of the canal they must be rolled back into the abdomen.

There have been a very few cases in which mesenteric vessels required similar treatment. In one instance a portion of the bladder pushed into the canal. In treating these conditions the object sought has always been a complete removal of the peritoneal sac and a replacement of the other structures uninjured within the abdomen.

One exception has been made to this rule, in a case already repeated in the *Annals of Surgery*. A patient with absolutely normal female external genitalia had an inguinal hernia first on one side and then on the other. On each side a normal testicle was found and removed.

Many cases have been complicated by incomplete descent of the testes. No children have been operated upon in whom the testis had not at least entered the inguinal canal. In general, with incomplete descent of the testis operation has been postponed till well toward puberty, provided the hernia was not giving trouble and provided the position of the testis did not subject it to injury. The object sought by operation has been the separation of enough of the sac to form a tunica vaginalis, the closure of the peritoneum at the neck of the sac, the displacement of the testis downward into the scrotum as far as possible. In securing freedom of the testis it has not been found that the vessels alone were short. Usually all the structures of the cord, including vas and vessels, were deficient.

It is essential for the proper development of the testis that the vascular supply should not be materially injured. The testis should not be roughly handled—if possible it should always be kept covered by peritoneum. Touching the uncovered testis with dry gauze commonly causes much more inflammatory reaction than much squeezing and traction on the protected testis. Retention of the testis in its new position has usually been secured by suture of the tissues about the vas, as it emerges from the abdomen, to Poupart's ligament.

After Care. Various methods of dressing the wound are used according to circumstances. Usually a cocoon made up of a few layers of sterile gauze, is fastened over the wound with flexible collodion. This practically protects the wound from being wet with urine, while at the same time the small amount of gauze is enough to absorb the few drops of blood which may come from the incision. Ordinarily a gauze pad and a spica bandage are applied outside of the collodion dressing. In older children no special precautions are needed to prevent wetting of this dressing. In the younger children various methods to prevent this are used. A thin rubber finger cot may be fastened about the penis with adhesive plaster. The closed end of the cot is slit and fastened to a rubber tube, which conducts away the urine. Of course the cot must be changed before the skin becomes irritated by any urine retained within it.

In some instances the penis may be placed directly in a wide necked bottle tied in place. A piece of thin rubber dam with a small hole cut in it may be placed around the penis. In infants by far the simplest method is that of Stiles—no special dressing. The baby is held on its back by loosely fastening the arms and legs to the sides of the bed. Thus the child is kept from scratching the wound. When a boy passes urine when lying on his back the stream practically always shoots upward and toward the foot of the bed. Any absorbent material stretched below the baby's feet catches the urine. and may be changed as is necessary. The bed clothes must be held up by means of some form of bed cradle.

In girls the dressing may be modified by substituting a pad of absorbent cotton placed between the thighs for the absorbent sheet placed below the feet for boys. In most cases treated in this way a small cocoon is first placed directly over the wound.

In the earlier cases the children were kept in bed for about eighteen days and were discharged at the end of three weeks after operation. Gradually this length of time has been

cut down. At the present time the children are usually kept in bed about ten to twelve days, and are discharged at the end of a fortnight. A spica bandage is usually continued for a fortnight or so after the child is discharged. Some restraint of violent exercise is generally advised for a couple of months after operation.

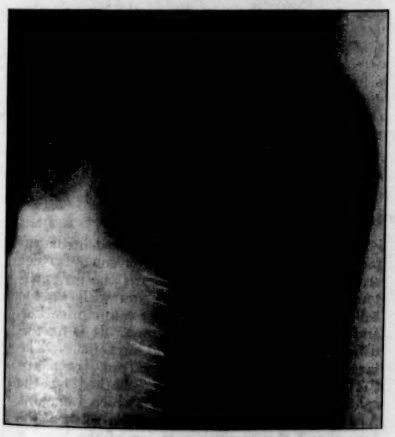
VIII.

A Case of Chondro-osteo-sarcoma. Amputation at the Hip.

By Robert W. Lovett, M.D.

[From the Orthopedic Clinic of the Children's Hospital.]

C. P., a boy 11½ years old, was admitted to the hospital on February 24, 1913. The family history was good, and the personal history showed measles, pertussis and diphtheria seven and six years previously. There had been no known exposure to tuberculosis. In the fall of 1911, that is, about eighteen months prior to admission, while playing football his right leg had been hurt near the hip. Off and on since then he had limped. He had never had any acute pain, he had eaten and slept well, and there had been no loss of weight. The parents had noticed that the upper part of the right thigh was larger than the left.



Chondro-osteo-sarcoma of Femur.

Physical examination showed that the boy was well developed and nourished, the pupils were equal and reacted to light and distance, the throat was normal, the heart and lungs were normal, the abdomen was soft with no masses or tenderness, the inguinal glands on the right side were enlarged, and a few glands felt in the left inguinal region. Just below and anterior to the right trochanter there was a swelling about three inches in diameter, not reddened but hard and apparently connected with the bone. There was some slight tenderness on pressure over the middle of the tumor. The legs were of equal length, and there was no difference in the circumference of the calves. The thigh was 1¾ inches more in circumference over the tumorous mass than at a corresponding point on the other thigh. There was no distinct limitation of motion of either hip, although the movements in the right hip were perhaps a little less free than those in the other. Examination of the urine showed that it was acid, with little sediment, no albumin, sugar or acetone. Microscopic examination showed no casts, blood, white blood corpuscles, but a few mucous shreds. The von Pirquet skin test was positive, the leucocyte count was 6,500, the Wassermann reaction was negative. The x-ray showed a thickening of the upper



Chondro-osteo-sarcoma.

four inches of the shaft of the femur, and a rounded curve from the neck to the shaft on the outside replaced the normal angle of the trochanter. In the interior of the bone the normal structure was replaced by a somewhat globular homogeneous area both in the cortex and in the medulla. It appeared to be fairly sharply limited, and the suggestion was of a more or less encysted tumor about 2½ inches in length from above downward.

The diagnosis was a troublesome one, and we considered a malignant growth, bone cyst and syphi-

lis. Tuberculosis was suggested by the positive von Pirquet test, but the character of the lesion was not in any way characteristic, and it was regarded as unlikely. The expansion of bone present in this case was not characteristic of bone cysts, and had not existed in those of the same region that I had seen. I therefore regarded that as unlikely. The lesion was also not characteristic of syphilis. The Wassermann test was negative, and the family history negative. Although I felt that no one of these possibilities could be excluded, theoretically I was inclined to the diagnosis of a malignant tumor involving the upper part of the femur. The boy was kept in the ward for study until March 7, when it seemed wise to remove a sufficient amount of the growth for examination in order that the diagnosis might be perfectly sure, because if a malignant tumor existed amputation at the hip joint seemed the only means of cure.

On March 7 I made an incision over the tumor growth, and with a bone gouge removed a piece of bone ¾ inch long and ½ inch thick. Periosteum was sewed over the bone removed, and the operative material sent to Dr. Councilman for examination. Dr. Councilman reported on the 10th of March as follows:

> "The tumor contains some cartilage and small areas of imperfectly formed bone. The general mass is composed of spindle cells. Nuclear figures indicative of rapid growth are few. The cells are few and compactly welded. The tumor seems to originate from periosteum. It is undoubtedly malignant, but whether it has reached the stage of generalization cannot be said."

The boy made a perfectly good recovery from the operation of March 7, and the parents were advised that amputation at the hip joint seemed to be the only treatment worth pursuing. They accepted the situation, and on March 13, 1913, the boy was etherized by Dr. Freeman Allen, who was good enough to serve on account of the character of the operation. Dr. James S. Stone was also good enough to assist me in the amputation. The Wyeth skewers were passed to hold the tourniquet, and there was very little bleeding during the operation. The only difficulty was that on account of the possible involvement of the skin on the outer surface of the femur where I had made the exploratory operation, I was anxious to remove all that material, and, to do this it was necessary to do most of the work at the inside of the femur, leaving the outer surface as far as possible intact and using the inner flap, consequently the dissection was carried on on the inside of the femur and the head disarticulated from the inside, thus removing the tissue positively infected with the tumor.

The patient suffered little or no shock, and had little temperature reaction. The father was told that the specimen carefully examined might be of use, and requested that it should be done. It was therefore sent to Dr. Councilman for examination, who reported on March 17, 1913, as follows:

> "I enclose you a photograph of the cross section of the upper third of the femur which you sent. As you see, the bone is greatly enlarged, and the interior of the bone is filled with a tumor mass that extends up toward the head of the bone at the line just beneath the epiphysis, which I have marked out in ink. Beyond that line the bone seems to be normal. I have also examined a section of the bone taken from the lower part of the medulla (at a point about six inches below the trochanter). I did not go lower down. The whole bone between the two ink lines on the photograph is to a greater or less extent infiltrated by the tumor. On the outer aspect of the thigh the entire bone is involved out to the edge of the periosteum, which you see is somewhat elevated. The pale, homogeneous masses in the centre are chiefly composed of cartilage in which there is some hemorrhage. I do not see what you could have done save amputate as you did. I think that the tumor started in the medulla of the bone in the cartilage, that it is essentially a chrondo-osteosarcoma, and it did not start from the periosteum, which is elevated and involved secondarily. There would have been, as you see, no question of shelling out the tumor or doing anything more than you did. I do not think that there is any probability of there being now or at any time in the future a metastasis from this tumor."



Chondro-osteo-sarcoma.

On April 9, 1913, Dr. Councilman wrote me again with regard to the case as follows:

> "I have been a good deal interested in the tumor of the leg, and I send you some further studies upon it. Figure 1 shows the myxomatous part of the tumor. As you will see, the cells are typically stellate, inter-communicating, and lie in a homogeneous stroma. It is an unusually fine specimen of the myxoma. The large specimen, No. 2, comes from the sharp limit of the tumor which is marked on the colored photograph of the thigh which I enclose. As you will see, the line of junction between the tumor and the cancerous tissue of the bone is perfectly sharp. The tumor is marked on the photograph 1, the normal bone 2. It is very interesting to see that the tumor here is not as sharp as it seems to be. You will notice a little island in the midst of the marrow, which is marked 3. This denotes an extension of the tumor, showing as a small island in the marrow.

You will also note on the edge of the tumor the gradual replacement of the marrow tissue. The tumor, as I conceive it, started mainly as an enchondroma, but with elements of the connective tissues superadded. This was probably congenital. As it began to grow, elements other than the cartilage gained the upper hand, and it became essentially myxoma fibroma. In the growth of this tissue both bone and cartilage disappeared. The large photograph (3) is a very low power through a portion of the cartilage and the bone. The very black masses in the upper portion of the specimen marked 1 show the remains of the bone



Chondro-osteo-sarcoma. Right Femur.

which is being absorbed, with the tumor tissue in between. The lower portion of the specimen marked 2 shows the cartilage undergoing the same sort of absorption. The specimen marked 4 is from the shaft of the bone, and it shows the growing tumor, and the bone absorption. The pale areas here represent the bone, and about these you find growing tissue of the tumor, and along the edges of the bone the absorbing giant cells or osteoclasts. The specimen 5 shows the same thing happening at the edge of the cartilage. The homogeneous areas in this represent the cartilage, which is at this point almost entirely replaced by the growing tissue. I think that your operation was a timely one, and there should be no return of metastasis from tumor, although the single point which I have called your attention to in the marrow renders this just a little doubtful."

The boy remained in the hospital until April 10, 1913, making perfectly good progress. There had been a certain amount of fat necrosis in the flap, but union occurred perfectly well, and when he was discharged there was a slight area about the size of the thumb nail which was granulating. His general condition was excellent, and he was discharged home.

IX.

Obstetrical Paralysis with Especial Reference to Treatment.

By John Jenks Thomas, A.M., M.D.

A little over eight years ago there was published in the Boston Medical and Surgical Journal an article written by me in which I reported two cases of bilateral paralysis of the lower-arm type resulting from injuries at birth. It is not my intention to say anything further at this time in regard to this rather rare form of obstetrical paralysis in the child, of which in twenty years' work at the Children's Hospital I have not seen more than a dozen cases, but I wish simply to allude to the conclusion then stated in regard to the etiology of these birth injuries of the child. As I then stated, the weight of opinion of the more recent writers, Fieux, Duval and Guillain, Schoemaker, Stolper, and Walton, and Stone here in Boston, was inclined to the view that the injury is due to stretching of the plexus in head presentations from the shoulder at the pubes being held back. Confirmation of this theory is also obtained by what has been found at operation in these cases, as in the cases reported in the excellent article of Clark, Prout and Taylor, published after my former paper was written. Dr. Stone, who has kindly operated on some of my cases, once found the plexus entirely lost in a mass of scar tissue lying at Erb's point, so that the nerve resection which we had planned had to be given up as the gap was too great to be bridged.

We may assume then that the paralyses of one arm occurring in infants during delivery are due to injuries of the plexus from stretching. In severe cases hemorrhage takes place about the plexus, or the plexus may at times be ruptured, while in milder cases there is a hemorrhage within the connective tissue sheath of the cord of the plexus with the resulting fusiform fibrous swellings described by Clark, Prout and Taylor, while probably in the mildest cases we have merely a stretching of the nerve bundle with consequent exudation within the sheath. A case illustrating this was one sent to me about nine years ago by Dr. Hunting of Quincy, where a boy of fourteen at a summer camp for boys was punished for some infraction of the rules by being made to carry a number of buckets of wet sand, which he did by placing the bucket on his shoulder, thus press-

ing the shoulder down and the head to one side, and producing a paralysis of the obstetrical type. That the severity of the injury varies in some such way as I have suggested is indicated by the varying severity and duration of the symptoms. No doubt many of the cases where the arm hangs limp by the side recover within a period of time in the neighborhood of a couple of months. If this were not so we should hardly have such varying ideas as to the seriousness of such birth injuries as we find among physicians. As a rule, I think general practitioners and obstetricians regard these cases as quickly curable. The neurologist and orthopedic surgeon to whom the severer cases come later for treatment, on the other hand, probably regard them too seriously, as extremely obstinate paralyses for which little can be done. The pediatrician probably occupies a position about midway between these two extremes.

The grouping of the muscles affected in this form of paralysis is well known as they are the muscles represented in the plexus at Erb's point, where the fifth and sixth cervical nerve roots unite to form the upper cord of the plexus, just before the supra-scapular nerve is given off. These comprise the deltoid, supra- and infra-spinatus, brachialis anticus, biceps, supinator longus, and probably the supinator brevis also. The resulting paralysis leaves an arm which cannot be abducted, and hangs by the side with the elbow extended and with marked pronation and internal rotation of both the upper arm and the forearm. As time passes, even with untreated cases, a partial recovery is seen. The flexion of the forearm at the elbow is practically always regained, and also abduction of the arm from the trunk, but in even moderate cases supination of the forearm always remains poor, and the external rotation of the humerus improves least of all, which accounts for the elevation of the elbow in attempting to bring the hand to the mouth, a fact that can be easily verified by anyone by attempting to put the thumb in the mouth while the humerus is strongly rotated inward. In the older cases with this trouble we find a lack of development of both muscles and bones of the affected extremity, and indeed of the whole shoulder girdle, which is evidently secondary to the paralysis and lack of use. One fact, however, is most striking in all cases that have persisted over some three years or more, and that is the notable lack of flaccidity, hypotonia and atrophy in the affected muscles. This is very striking if one compares one of these cases with weakness of the deltoid and spinati with a case where the same muscles have been left paralysed from an attack of poliomyelitis. In the latter the flaccid, atrophied condition of the deltoid allows one to see very clearly even at a distance the bony prominences about the shoulder, and the head of the humerus, while often there is a distinct space between the head of the humerus and the acromion due to the dropping of the whole arm, while in cases of obstetrical paralysis even though the muscles are much smaller than those of the unaffected shoulder there is almost never the extreme atrophy with prominence of the bony structures so striking in the cases of poliomyelitis.

The treatment of these cases may be divided into the operative and the non-operative. Of the first I shall speak very briefly. Two procedures in general have proved useful. The operations on joints to relieve limitation of motion from ligamentous contracture, and the transplantation of strong muscles to supplement the action of weak ones, the best results being from transplanting the pectoral, or the trapezius into the deltoid; and the excision of a portion of the brachial plexus at Erb's point, and the suture of the nerve trunks, as first practised, so far as I have been able to learn, by Kennedy of Glasgow, and later by Taylor of New York. Briefly this method should not be used too early, certainly not under a year, and probably not under two and a half or three years of age, and after seven or eight years of age it probably offers very little hope of improvement. It should be reserved for the severe cases which show little tendency to improvement, or which have not been treated. Probably in a good many of these severer cases it will be found impossible to trace and excise the injured portion of the plexus because of the surrounding scar tissue as in the case operated upon by Dr. Stone of which I have spoken. In cases where resection and suture of the plexus has been done it is important to remember that the operation must be followed by exercises and training of the muscles.

The second method of treatment of which I wish to speak which we have used at the Neurological Clinic at the Children's Hospital for a number of years, may be called that by massage and educational gymnastics. This method is based upon the belief that in most cases the affected muscles in time recover some slight power over which there is voluntary control, and that the awkward movements are due to the child using the stronger muscles, and accomplishing its object by using the arm in a different way from the natural movement. That this is so I think is proved by the very moderate atrophy of the affected muscles, and the very evident contraction that can be felt in them when the child attempts to use them. Thus abduction of the arm returns in part, some of the motion being due to movement of the scapula, but also from action of the deltoid, which serves at least to fix the humerus on the scapula. With some returning power in the affected muscles the arm is still used awkwardly, because the child learns to substitute the action of stronger muscles for those of weak ones, in order to execute the desired movement. For example when the forearm is flexed in order to bring the hand to the mouth, in case there is internal rotation of the humerus, the elbow must be abducted to compensate for this internal rotation. By a system of ingeniously devised plays the very small infant can be

taught to execute desired movements in a surprising way. To be successful this method of treatment should be started when the child is very young, preferably under one month, and must be persisted in for a number of years, with gradually lengthened vacations from treatment, till the child uses the arm naturally from habit. To these educational gymnastics we add passive movements, and also massage, to prevent the formation of deformities, and to aid in the growth of the limb.

We may divide the treatment into three parts:

1. Passive movements of the joints, shoulder, elbow, wrist and fingers, best done by someone who knows the anatomical possibilities and limitations of these joint movements. These movements need to be continued until the arm has entirely recovered.

2. Massage, of the gentle kneading form, to stimulate growth, which may be discontinued when the arm keeps up in growth with the unaffected one.

3. Exercises, to induce the child to use the arm, voluntarily, which vary with the age of the child.

(a) Under the age of two months one uses gentle irregular movements, carried out by the operator, and by the mother between treatments, such as moving the baby's hand and arm in various directions in imitation of voluntary movements made by the other arm.

(b) After two months when the baby begins to notice its hands and fingers more definite exercises are employed such as bending, stretching, or spreading the baby's fingers while the operator moves her own in a similar way. Very soon, especially if these movements are accompanied by some nursery rhyme the child will begin to imitate the movement and perform it without assistance. Besides the finger movements various others are used. The hand is flexed and extended at the wrist, and then carried to the neck thus flexing the forearm; the forearm is abducted and adducted with the hand supinated and the elbow bent and held at the side; arm extension in supination, where with the elbow bent and at the side the forearm is rotated outward, but within the limits of comfort, the hand in supination, the arm is extended by the operator in the direction of the line of the forearm. The next exercise consists in the operator lifting the arm to as near a vertical position as possible, from a position of extension in supination; then from the vertical position the elbow is lowered to the side bringing the hand to the shoulder or neck. From the position with the elbow bent and at the side the arm is stretched out and returned; and the arm in the horizontally stretched-out position is swung to describe a cone. These exercises are repeated a definite number of times, from two to eight each. Then come the exercises for the two arms together. The arms are stretched sideways three or four times and then the hands carried to the head; the arms are extended upward, and then returned to the bent position; the arms form a circle in front of the body the fingers touching and then the arms are carried upward until the hands are over the head and then separated and lowered to the sides. There are numerous variations of these exercises which are used while the child needs assistance in performing them, that is till ten or twelve months of age.

(c) At this age the child begins to rebel at interference and shows plainly a desire to act independently. From that time till about two years of age it is greatly absorbed in blocks, and it can be induced to reach in all of the directions given in the previous exercises in order to get the block which it wishes for building purposes provided it cannot get it otherwise. It can also be tempted to put blocks into a box held at various points calling for the muscular action desired. A box of blocks kept especially for the lesson is found to work well in keeping the interest of the child.

(d) At about eighteen months of age the child can be induced to return to the first exercises with the rhymes, but now done voluntarily, and dumb-bells, wands, balls, bean-bags and such things can be utilized, the same movements being carried out with these objects. At two and a half or three years the child will swing on a bar, walk into the corner with arms spread out, creep up the wall with the fingers and other exercises devised to use the desired movements. The last muscles to develop are usually the outward rotators of the humerus, and the supinators. These often need attention after the arm is apparently well. The special exercise for this stage is, with the elbow bent at the side, and the forearm in supination and abducted, with a small iron dumb-bell in the hand, the arm is extended in the direction of the line of the forearm.

We have obtained such excellent results at the Children's Hospital from such a system of what I have called educational gymnastics that we have entirely given up the use of electricity in cases of obstetrical paralysis, partly because it is much less effective, and partly because the muscles which need exercises and electrical stimulation the most, namely the spinati, practically cannot be stimulated by electricity because of the overlying fibres of the latissimus and trapezius.

As illustrations of some of our results with this treatment I wish to cite three cases:

CASE 1. Grace G. was first seen when three months of age. The labor had been hard and forceps were used. It was noticed very soon after birth that the left arm was not moved, but she always moved the fingers and hand, though the thumb was held in the palm most of the time. She was first seen in April, 1907. In July she could lift the arm

to the level of the mouth, but only flexed the elbow slightly, and there was still considerable pronation of the humerus and marked pronation of the forearm. In November she could flex more at the elbow, but supinated very little. By March, 1908, she could supinate about twenty degrees beyond the mid point, put the hand behind the head, and elevate fully. In September of that year she could elevate the arm to the perpendicular, put the hand behind the head, and the hand to the mouth without elevating the elbow, and supination, while the most affected movement, was two-thirds normal. In January, 1909, I have noted that supination seems to be to the full extent if the humerus is held in external rotation, and the whole trouble seems to consist in a partial loss of this external rotation. In December, 1912, when the arm was hanging by the side there was a little internal rotation of the humerus, but actively it could be rotated outward as well as the unaffected one, and all movements were normal, though at times the elbow was elevated. The left arm was half a centimeter shorter than the right, and the forearm six-tenths smaller while the circumference of the upper arms was the same.

CASE 2. Ellen P. was first seen on July 21, 1909, at the age of two weeks. The delivery had been by the breech, with no especial difficulty in the delivery of either the head or body. Immediately after birth it was noted that neither arm was moved, and that the right one was pronated but the left was not. When first seen the child had begun to move the left arm freely, but not the right one. This arm was held at the side and could not be abducted nor flexed, and was strongly pronated, while the movements of the wrist and fingers were freely made. By November the arm could be abducted to the level of the shoulder, flexion of the forearm was good, and there was some power of supination. In April, 1910, flexion of the forearm was normal, she could raise the hand to the level of the top of the head, supination was fair, and there was some external rotation possible of the humerus, though the pectoral was more tense than normal. In July, 1910, she could elevate the arm fully, and supinate the forearm completely, and the only distinct sign of the paralysis was a moderate internal rotation of the humerus, and that the child occasionally raised the elbow in putting the hand up. At the present time there is no difference in the length or circumference of the two arms, and all movements are normal.

CASE 3. Mary L. was seen first on October 11, 1905, at the age of eight weeks. There had been great difficulty in the delivery of the shoulders, and since birth the left arm had been motionless at the side except for some movements of the fingers. It could not be flexed at the elbow, was strongly rotated inward, and pronated, and there was no power of abduction. This case is mentioned because it was treated by the exercises alone, with no massage, and by April, 1909, she could make all movements well with the affected arm, and could supinate quite well, but there was considerable hanging behind in growth of the arm, though I have unfortunately been unable to find the measurements, but the difference was much more than in the cases which also received massage during the treatment, thus showing the importance of this in preventing the lagging behind in growth.

X.

ROUND SHOULDERS WITH SHORT CLAVICLES.

BY AUGUSTUS THORNDIKE, M.D.

The following is published because of peculiar features:—

Annie M., aged nine years, first came to the Children's Hospital in January, 1912. Her mother had noticed stooping shoulders since the age of four years, a condition which steadily grew worse. She had always been thin and puny. There was no lateral curvature, but the shoulders were very sloping and drooped far forward, producing a hollow chested appearance. The tips of the shoulders seemed very close to the nipples, and by measurement were less than two inches from them, while the scapulae projected like angel wings.

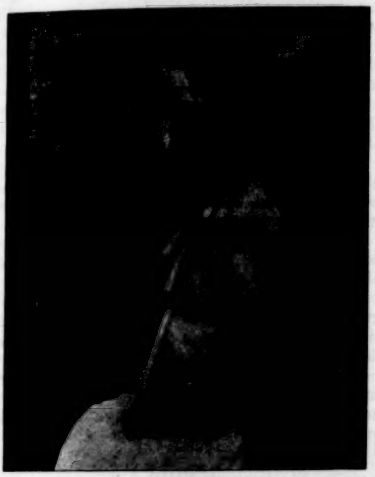
She began treatment at the hospital with two months of exercises. She had previously had them at home under direction of her physician without benefit. Entirely at the parents' request she entered the hospital wards to see if an operation could be done. The position of her shoulders and her general attitude is shown in the photographs. The muscles of the upper back were very little developed, while the great pectoral muscles were so stout and short that they effectually prevented throwing the shoulders back. The collar bone seemed short and the upper part of the body of the shoulderblade could be felt curving forward at a right angle to the plane of the lower portion.

Were the clavicles really short or did they seem so? I was unable to find any data relating to variations in the size of clavicles during the period of growth. We know that the size and shape are affected by rickets, osteomalacia, and that shortening occurs from fractures; in rare instances the bone or a large part of it may be absent at birth. No other assistance was obtained from the literature.

Certain definite proportions exist between the total height of the human body and that of parts, like the head, trunk, arms, legs. Painters and sculptors make use of these proportions. Why not extend this rule to other bones in the body? Why not apply it as a test to children's clavicles, and find out what relative proportion exists between the length of the clavicle and the height of the child? I accordingly measured these on three different occasions in the hospital wards. Twenty children were measured at one time, thirteen at another and six at another time, a total of thirty-nine children between the ages of two and twelve years. The ratio between the length of the clavicle and the height of the child averaged 9.97%. That is to say, the average of thirty-nine children showed the length of the clavicle to be 10% of the child's height. Individual measurements varied, the shortest was 8.8%, the longest 11.2%.

Annie M's. clavicles measured 4⅛ inches, her height 52 inches, the ratio 7.9%. In other

words, her collar bones were relatively 1⅝ shorter than the shortest, and in order to attain average proportions, each bone should be an inch longer.



Annie M. Round sloping shoulders, short collar bones.

This was explained to the parents, and at their request on March 18th, under ether, the clavicles were divided by an oblique osteotomy, and the great pectoral muscles cut near the insertion. Less than a half inch could be gained before cutting the pectorals. Much more than an inch afterwards. The blade of the osteotome was a quarter of an inch wide; it was made to enter the clavicle just outside the centre, and was directed toward the outer posterior corner of the bone. As the outer half of the clavicle is very thin, vertically, but in an anteroposterior direction widens greatly at the outward end, the cut surfaces of the bone were still in contact over a large area even when the outer fragment had uncovered an inch of the inner fragment. There was little tendency to displacement. Catgut sutures were used, one over the clavicle, two over the pectoral incisions on each side; small sterilized gauze dressings were applied with adhesive plaster strips, and a short light plaster of Paris jacket applied, carefully modelled over the shoulders, the upper chest and the back. She was allowed free use of the arms below the elbow; in two days she could sit up and feed herself; and in three days she was partially dressed, walking about the ward. The discomfort was very little, the wounds healed by first intention; when the plaster was removed in three weeks the right clavicle measured 5⅛ inches, the left 5¼ inches, a gain of ⅞ and of one inch respectively.

Three months after operation the gain was slight, but she was broader across the shoulders, and her parents were pleased. The back muscles were still very thin and weak; she was exercising them and slowly developing them.

Since then another year has passed. Her attitude is really much improved; she can assume a fairly normal position and the chest expansion is much greater, but it may still be necessary to straighten the scapulae by an operation. The writer hoped that if she could hold her shoulders in a fairly normal position for a year, the body of the scapula would straighten itself.

This is the only instance I have recognized of short clavicles. Was the condition due to an early arrest of growth in the bone during fetal life, or did it result from the unusual forces acting upon the clavicle from the over-powerful pectoral muscles opposed by very weak trapezii and rhomboid muscles and serratus.

Oblique osteotomy for lengthening a clavicle had been already performed by Dr. F. E. Peckham of Providence for a patient with considerable shortening from a healed fracture and scoliosis. This I did not know at the time I operated.

XI.

Removal of Foreign Bodies From the Oesophagus and Lower Air Passages in Children.

By D. Crosby Greene, M.D.,

and

F. E. Garland, M.D.

During the past five years of our service at the Children's Hospital, we have removed foreign bodies obstructing the oesophagus or lower air passages in twenty cases, by means of endoscopy. Ten of these foreign bodies were located in the oesophagus, three in the larynx, three in the trachea, and four in the bronchi.[1] Prompt recovery followed in all but two of the cases. In one of these, a piece of fig in the left primary bronchus was not completely removed, and later caused a pulmonary abscess which resulted fatally several weeks after bronchoscopy. The other case was brought into the hospital in a state of prostration, having been mistakenly treated for a week for diphtheria, by successive intubations and several doses of antitoxin. The child was almost moribund at the time, and removal of a peanut from the left bronchus was followed by death in a few hours.

For obvious reasons the majority of foreign bodies lodged in the oesophagus or lower air passages are found in young children.

The problem of their removal in children as contrasted with that in adults presents two main differences: the first has to do with the anesthesia,[2] and the second with the smaller calibre of the passages. Whereas in adults with a moderate degree of self control local

anesthesia may be successfully employed, we are convinced that in children peroral endoscopy can be performed more successfully, with less trauma, and with less shock to the patient under a carefully conducted general anesthesia combined with local anesthesia. An exception is made in those cases in which the foreign body is of sufficient size to produce marked obstruction of the larynx or trachea. In such cases we have done tracheotomy under local anesthesia. In most cases we have used ether preceded one hour by a subcutaneous injection of atropine in the dose appropriate to the age of the child and enough to produce a distinct physiological effect. Ether is administered slowly by the open method, and when the child is deeply narcotized, the larynx and trachea are swabbed with a solution of cocain (10%) and adrenalin (1 to 1000.)[3]

If these preliminaries are carried out, the patient is brought up to the stage of operation with the larynx, trachea, and bronchi comparatively free of mucous, and conditions are most favorable for rapid discovery and extraction of the foreign body. The importance of these preliminaries can only be realized by one who has tried to work in the trachea and bronchi of a patient in whom they have been omitted. The presence of copious mucus and the irritability of the mucous membrane, made worse by the constant swabbing which is necessary in order to clear the field, combine to enhance many times the difficulties of the procedure.

The smaller calibre of the air passages in children naturally necessitates the use of smaller tubes in bronchoscopy and oesophagoscopy. We have found in practice that a tube 7 m. m. in diameter is small enough to permit exploration of the main bronchi in the smallest children. The bronchoscopes used are all of Jackson's pattern. For laryngeal work we have used both Jackson's and Mosher's small specula. The latter has proved to have a distinct advantage over the former in operative work by reason of its open construction which permits a better view of the field when instruments are being introduced and used. In oesophageal work we give the preference to Mosher's oval oesophagoscopes, because the oval shape in a lumen of a given circumference again gives better opportunity for operative work. Altogether the best forceps which we have used is Coolidge's. It combines admirably two essential mechanical features: (1) it is operated by a handle and trigger entirely outside the line of vision; (2) closure of the forceps is accomplished without any movement of the blades in the line of direction toward or away from the object to be grasped. The same handle may be used for long or short distance work, by fitting to it the tips of appropriate length.

The anesthetized patient is put in the dorsal recumbent position with the head hanging over the end of the operating table and supported by an assistant. The laryngeal speculum is then introduced and inspection made of the hypopharynx and larynx. If the oesophagus is to be explored, the laryngeal speculum is now withdrawn and an oesophagoscope with mandrin guide is then manipulated into the oesophagus. As soon as the upper constriction of the oesophagus is passed, the mandrin is withdrawn and the oesophagoscope slowly passed downwards, the lumen being always kept in view for inspection.

If the trachea or bronchi are to be explored, the laryngeal speculum is not withdrawn until, after cocainization of the larynx and trachea, a bronchoscope has been passed through the glottis into the trachea. The speculum is then withdrawn and the bronchoscope passed downward through the trachea into the bronchi.

Peroral endoscopy is not indicated for recovery of a foreign body of considerable size obstructing the trachea, such as a peanut or a bean. Such objects are likely to slip out of the grasp of the forceps in the attempt at extraction, and an emergency tracheotomy under difficult conditions may be required. It seems to us much better to open the trachea at the start, under local anesthesia if the dyspnea is severe, and carry on endoscopy through the tracheal opening.

REFERENCES.

[1] The objects recovered from the esophagus were: 1 collar button, 1 medal, 1 Canadian two-cent piece, 2 one-cent pieces, 1 orange pulp, 1 piece of bent wire, 2 twenty-five cent. pieces, 1 cherry stone, 1 piece of beef; from the larynx: 1 piece of egg shell, 1 piece of peanut shell, 1 piece of tin; from the trachea: 1 peanut, 1 piece of glass, 1 broken tracheal cannula; from the bronchi: 1 piece of fig, and fragments of peanuts in three cases.

[2] Jackson has recently advocated doing peroral endoscopy in children without any anesthesia. We believe that our record indicates the safety of general anesthesia under proper precautions—while its advantages are obvious.

[3] When the esophagus only is to be examined, local anesthetization is omitted.

XII.

THE INFLUENCE OF ALKALIES UPON GASTRIC MOTILITY.

BY MAYNARD LADD, M.D.

THE purpose of the work which forms the basis of this preliminary study has been to determine the effects of alkalies upon gastric motility in infants so far as they can be demonstrated by serial radiographs taken after the administration of milk-mixtures containing bismuth.

The use of alkalies, such as lime water and bicarbonate of soda, has been a common practice in infant feeding. Recently considerable doubt has been expressed, both as to the desirability of their use and as to whether their action is that which is theoretically claimed for them. When lime water or sodium bicarbonate is added to cow's milk, a basic calcium or sodi-

um-casein is formed which is not acted upon by rennet and will not form a curd even in the presence of soluble calcium salts. It would seem, therefore, that a considerable degree of alkalinity in a milk mixture would suspend gastric digestion by its inhibitory action upon rennet coagulation and, therefore, by allowing rapid emptying of the stomach throw the burden of digestion upon the duodenum. Whether this action really occurs ought to be demonstrable by means of serial radiographs of the infant's stomach. The other reasons for or against the use of alkalies in infant feeding do not enter into the scope of this investigation.

There are certain facts in regard to gastric motility observed in infants by this method which may be briefly stated in review, as bearing upon this subject. In two previous papers I have drawn inferences which my subsequent work has strengthened.* The cases studied to date represent 15 different infants, 36 series of experiments and about 275 radiographs. This is a comparatively small number, but allows us to make certain observations which are probably correct.

First of all, irrespective of the age of the child, or of the composition of the food, the gastric contents begin to pass into the duodenum at once and with considerable rapidity, until at the end of two hours, in the majority of cases, by far the greater part of the feeding has been expelled. The rate of discharge into the duodenum then becomes much slower and under certain conditions the emptying time may be greatly prolonged before it is complete. A new feeding tends to stimulate peristalsis and to push out ahead of it the residue of the previous feeding. If no new feeding is introduced, the emptying time depends partly upon the character of the food and partly upon the individual equation of the infant, or upon conditions of digestion which can not be determined by serial radiography.

As examples of this personal equation in gastric motility, I may mention three infants of approximately the same age and taking the same formula and the same amount at a feeding, who required one 2½, one 3¾ and one 4½ hours to empty the stomach.

The same three infants on another fomula required one 7½, one 4½ and one 6 hours for complete emptying of the stomach.

Moreover, in the same infants, we see marked differences in the rate at which the food leaves the stomach, which depend upon variations in the composition of the mixture. One infant of 7 months, for instance, required on different occasions, 2½, 4½, 7½ and 6 hours for complete emptying of the stomach, according to the character of the food given. The details of the experiments upon which these statements are made may be found in the articles to which I have referred.

* "Gastric Motility in Infants as Shown by the Roentgen Ray." *Am. Jour. Dis. Children*, May, 1913, vol. 5, pp. 345-358; and "Influence of Variations of Diet Upon Gastric Motility in Infants," *Arch. Ped.*, October, 1913.

I have not been able to show that the emptying time is always uniform in the same baby for a given formula. In fact, it is very evident that certain states of digestion occur which influence decidedly the gastric motility even when there has been no change in the food. This fact makes it difficult to draw definite conclusions as to the influence of variations in the composition of the food upon molitiy. It would appear that under certain conditions, not easily explained, stasis results and food remains in the stomach for many hours, unless its expulsion is encouraged by giving a new feeding.

So far as I have been able to determine, neither the percentage of sugar (up to the limit of 7 per cent.), nor its variety (lactose or maltose), has any influence upon gastric motility.

If the proteins are kept low, even the fats fail to show any constant tendency to prolong the emptying time, which, in several of my experiments, was the same whether the mixture was fat free or contained an amount of fat as high as four per cent. If the percentage of fat influences the motility at all, the effect is not striking.

In regard to the casein, however, we do see a marked effect upon motility, depending upon whether the percentage of casein is very low or very high and more particularly according to the form in which it is given. I have found generally that the full protein of milk (3.50%) considerably prolongs the emptying time, but that this effect is much more marked in some instances than in others. For example, in one child, the difference in the emptying time between a whey protein mixture of .90/.60 and one of 3.50 total protein (the fat and sugar being the same), was 2½ hours and 6½ hours. On the other hand, another child accustomed to high proteins from birth, took 4½ hours to empty its stomach on this same mixture containing 3.50 per cent. casein.

When the casein is converted into a non-coagulable form either by precipitation, or by the action of lactic acid cultures, forming the lactate of casein, the emptying time is much accelerated —varying from 2½ to 3 and 3½ hours. This is the most constant effect of variation in the composition of the food elements which I have been able to observe.

Whether the amount of energy involved in the digestion of food is influenced by the time it stays in the stomach is a point which seems to me of some importance in metabolism experiments upon infants. For example, in one experiment, an infant on a 0.00 fat, 6.6 sugar, and 3.50 protein required 6 hours to empty its stomach; the same infant on the same percentage formula but with the casein precipitated, discharged its contents into the duodenum in 2½ hours. The caloric value of the food was the same in each case, but the difference in the form in which the casein was given made a difference of 3½ hours in the emptying time. It would seem as if a greater amount of work was done in one case

than in another. Whether or not this is a point of importance in metabolism experiments, it is certainly one which must always be considered when we are taking serial radiographs for the purpose of determining gastric stasis in infants.

The following experiments to determine the influence of considerable quantities of alkalies on gastric motility, must always be judged in reference to the foregoing facts. There have been three infants studied. The results in each series may be briefly summarized as follows:

FIRST SERIES.

1. McGINNIS, Nov 18. A breast fed infant of three and a half months. Two level teaspoonfuls of bismuth subcarbonate were given in one ounce of water and the baby was allowed to nurse until the amount of the feeding was four ounces in weight. Feeding began at 9.30 a.m. Radiographs at 10 a. m., 12, 1, 1.30. Breast feeding without bismuth at 1 p. m. Plates show considerable residue at the end of 3½ hours. The last plate shows very clearly how the new feeding pushes the residue of the old feeding into the pyloric end of the stomach without mixing intimately with it.

2. McGINNIS, Dec. 1. The same procedure was carried out in the second series, except that one ounce of lime water was given in place of the plain water, making the lime water 25% of the total mixture of breast milk. Feeding begun at 9.30 a. m. Radiographs at 10 a. m., 12, 1.15. The last plate shows the stomach practically emptied in 3¾ hours in contrast to the large residue after 3½ hours in the previous experiment in which no lime water was given. Considerable difference is shown in the amount of stomach contents in the two plates at the end of the two hours; after the feeding with lime water the residue is considerably less, but the most striking feature is the rapid discharge in the last 1¾ hours.

SECOND SERIES.

1. POMMETT, Nov. 17. Three and one-half months. The food in this series was: Fat .0.00, Lactose 6.50, Protein 1.75. No alkalinity. Amount 3½ ounces. Tube feeding at 9 a. m. Radiographs at 9, 11, 12, 2. Stomach practically empty in five hours. This series represents very typically the normal discharge of the gastric contents on such a mixture. Notice the very slight change in the condition during the third hour of digestion.

2. Nov. 9. Same formula. Lime water, 25% of the total mixture. Tube feeding at 12.15 M. Radiographs at 12.15, 2.15, 3.15 and 4.10. Stomach practically empty in four hours (one hour less than in the series without lime water.) Notice the rapid discharge of the contents during the third hour of digestion.

3. Nov. 24. Same formula. Lime water 50% of the total mixture. Tube feeding at 11 a. m. Radiographs at 11, 1, 2.15. Stomach practically empty in 3¼ hours. The discharge of the contents in the third hour is still more rapid than in the series of Nov. 19.

The presence of lime water in this series apparently hastened the discharge of food into the duodenum, by 1 hour and 1¾ hours, respectively.

4. Nov. 26. Same formula, protein in form of precipitated casein. No alkalinity. Tube feeding at 11. Radiographs at 11, 1, 2.30. Stomach practically empty in 3½ hours. That is, when the casein was previously precipitated, the discharge of the contents was practically as rapid as in the series of Nov. 24, when 50% of the total mixture was lime water.

5. Nov. 29. Same formula. Protein in form of precipitated casein. Lime water 25% of total mixture. Tube feeding at 11.30 a. m. Radiographs at 11.30, 1.30. Stomach empty in two hours.

This experiment loses some of its significance in view of the fact that much of the casein became clogged in the tube so that the stomach contents were largely a sugar solution and bismuth. It is interesting, however, to note the rapid disposal of the bismuth, in the absence of any considerable amount of casein.

6. Dec. 2 Repetition of experiment of Nov. 29. Tube feeding at 9.30 a. m. Radiographs at 9.30, 11.30, 12.30, 1.15. Stomach practically empty in 3¾ hours.

Experiments 4 and 6, apparently indicate that when the casein is already precipated before administration, the lime water has no marked effect upon gastric motility, the discharge of the food into the duodenum being hastened by the subdivided condition of the casein, the lime water itself exerting no influence.

7. Dec. 4. Same formula. Protein in form of precipitated casein. Lime water 50% of the total mixture. Tube feeding at 10.30. Radiographs at 10.45, 12.30, 1.30, 2.30, 3.30. Stomach practically empty in five hours.

In this series, with lime 50% of the total mixture, considerable stasis is seen to exist during the third hour of digestion and the emptying time as a whole is prolonged. A similar, and even more pronounced state of stasis is seen in the third series, Dec. 15 (below).

THIRD SERIES.

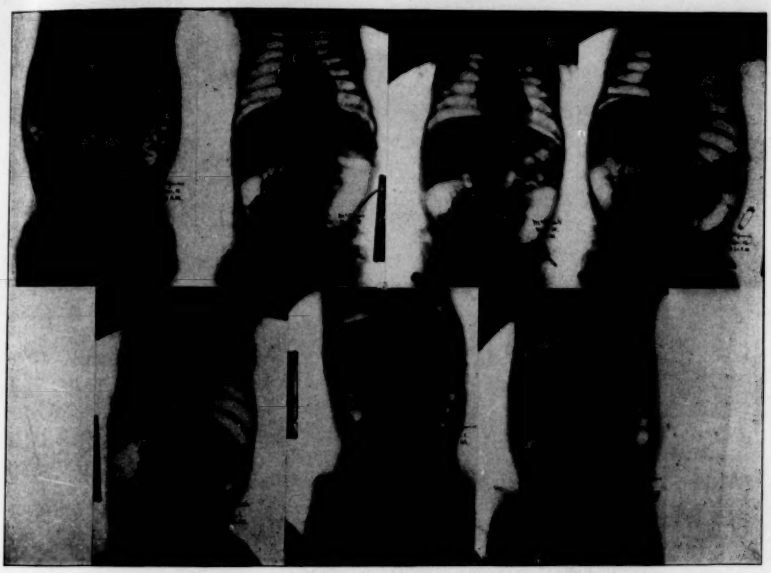
CUNNINGHAM. 8½ months. The food in this series was: Fat 2.00, Lactose 7.00, Protein 2.25. Amount seven ounces.

1. Dec. 13. No lime water. Tube feeding at 9 a. m. Radiographs at 9. 11.45, 1.15, 2. Stomach practically empty in five hours. Compare with Pommett, Nov. 17. The normal emptying time was the same for an infant of 8½ months, taking seven ounces, as for one of 3½ months taking 3½ ounces.

First Series.

McGinnis. Nov. 18.

10 A. M. 12 M. 1 P. M. 1.30 P. M.



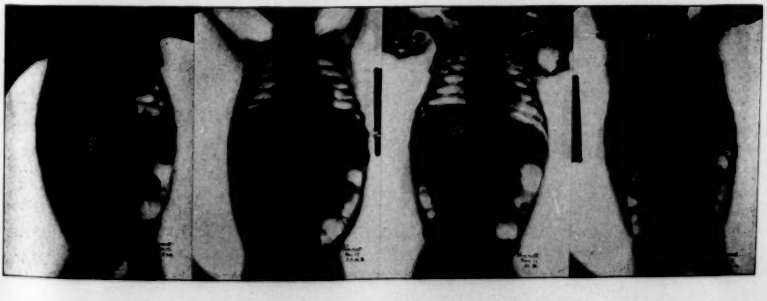
10 A. M. 12 M. 1.15 P. M.

McGinnis. Dec. 1.

Second Series.

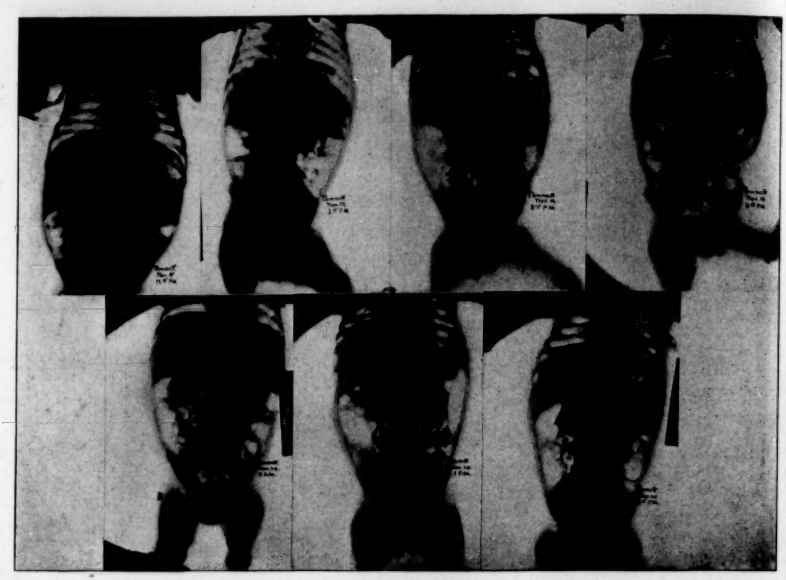
Pommett. Nov. 17.

9 A. M. 11 A. M. 12 M. 2 P. M.



Pommett. Nov. 19.

12.15 P. M. 2.15 P. M. 3.15 P. M. 4.10 P. M.

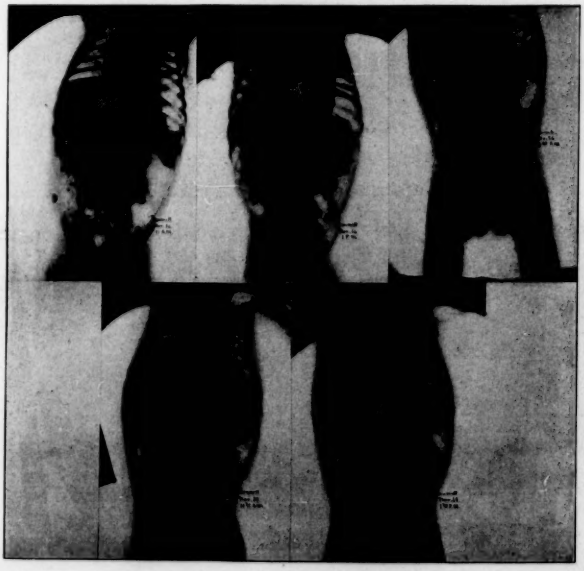


11 A. M. 1 P. M. 2.15 P. M.

Pommett. Nov. 24.

Pommett. Nov. 26.

11 A. M. 1 P. M. 2.30 P. M.

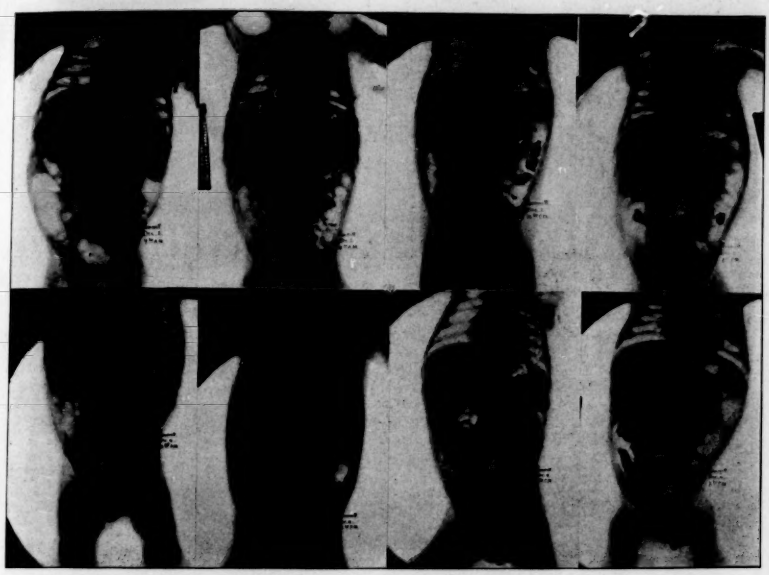


11.30 A. M. 1.30 P. M.

Pommett. Nov. 29.

Pommett. Dec. 2.

9.30 A. M. 11.30 A. M. 12.30 P. M. 1.15 P. M.



10.45 A. M. 12.30 P. M. 1.30 P. M. 3.30 P. M.

Pommett. Dec. 4.

Third Series.

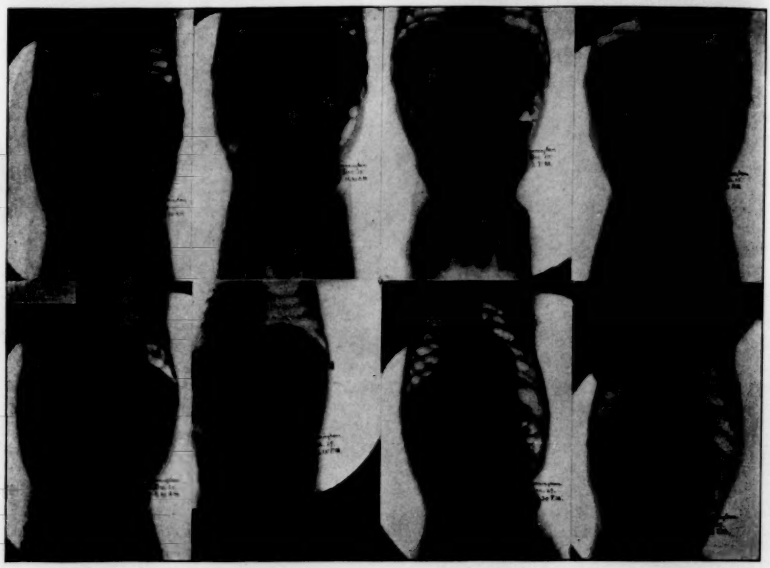
Cunningham. Dec. 13.

9. A. M. 11.45 A. M. 1.15 P. M. 2 P. M.



Cunningham. Dec. 15.

9.30 A. M. 11.30 A. M. 2 P. M. 4 P. M.

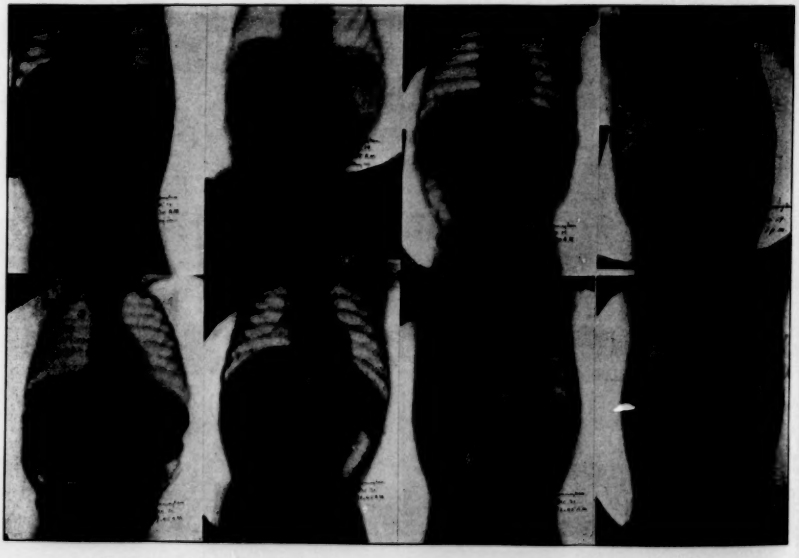


9.30 A. M. 11.15 A. M. 12.30 P. M. 1.30 P. M.

Cunningham. Dec. 29.

Cunningham. Dec. 19.

9.30 A. M. Sitting up. 9.35 A. M. Lying down. 11.30 A. M. 1 P. M.



9.45 A. M. 11.45 A. M. 12.45 P. M. 2.10 P. M.

Cunningham. Dec. 31.

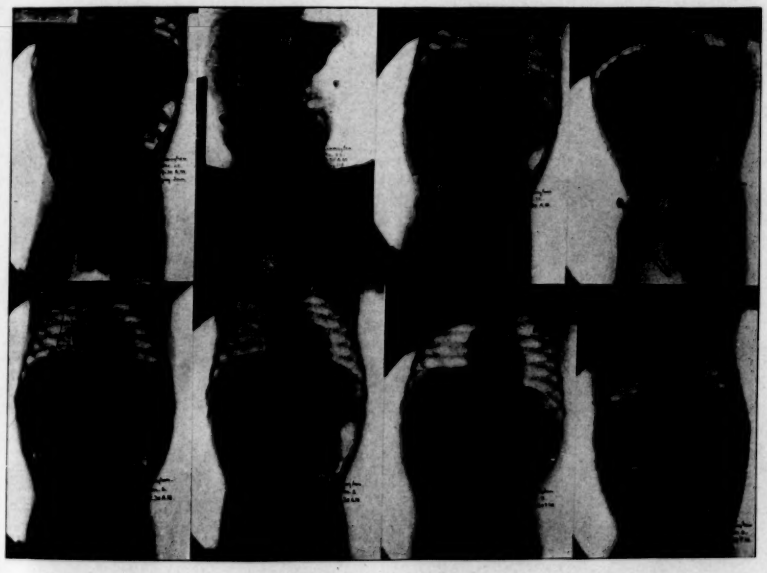
Cunningham. Dec. 22.

9.30 A. M.
Sitting up.

9.35 A.M.
Lying down.

11.30 A. M.

12 M.



9.30 A. M.

11.30 A. M.

12.30 P.M.

2 P. M.

Cunningham. Jan. 2.

2A. Dec. 15. Same formula. Lime water 25% of total mixture. Tube feeding at 9 a. m. Radiographs at 9.30, 11.30, 1, 2, 3, and 4 p. m. Stomach still contains food at seven hours.

This case illustrates the occasional condition of stasis one sees when the food is high in casein.

2B. Dec. 29. Repetition of 2A. Tube feeding at 9.30 a. m. Radiographs at 9.30, 11.15, 12.30, 1.30. Stomach practically empty in three hours.

The experiment 2 B. is similar in result to that in the McGinnis and Pommett series, the emptying time being diminished by 2 hours, when the feeding was strongly alkaline. The anomalous condition of stasis in 2 A. is difficult to explain with any degree of certainty.

3A. Dec. 19. Same formula. Sodium citrate, 14 grains. Tube feeding at 7.30. Radiographs at 9.30 lying down, 9.35 sitting up, 11.30 and 1 p. m. Stomach practically empty in 5½ hours. The difference in position when the body is erect, causes the pyloric end of the stomach to be slightly lowered, the cardiac portion remaining unaffected.

3B. Dec. 31. Repetition of 3A. Tube feeding at 9.45 a. m. Radiographs at 9.45, 11.45, 12.45 and 2.10. Stomach practically empty in 4½ hours.

The influence of sodium citrate in this series would, therefore, seem to be very little as far as gastric motility is concerned. It is certainly less marked than in the series in which lime water and sodium bicarbonate (see below) were use.

4A. Dec. 22. Same formula. Sodium bicarbonate 14 grains. Tube feeding 9.30. Radiographs at 9.30 lying down, 9.35 sitting up, 11.30, 12. Stomach practically empty in 2½ hours.

4B. Jan. 2. Repetition of 4A. Tube feeding at 9.30 a. m. Radiographs at 9.30, 11.30, 12.30, and 2. Stomach practically empty in four hours.

The action of sodium bicarbonate is, on the whole, even more striking than that of lime water, but the difference may not be borne out in a larger series of cases.

In this preliminary work, I have made no effort to attempt to judge of the effects of anything but large amounts of alkalies. Lime water and bicarbonate of soda unquestionably tend to hasten the discharge of the gastric contents into the duodenum. This effect is sometimes seen in the more rapid discharge of the contents in the first two hours of digestion, but that difference is not as striking as one would expect from the theories in regard to the use of alkalies which have previously been held. The most important point brought out by these experiments is the shortening of the latter half or the digestive period by the use of alkalies. The effect on gastric motility is, therefore, probably due almost wholly to the action of alkalies, upon the casein curd.

XIII.

A Study of the Etiology in One Hundred and Seventy-Five Epileptic Children.

By Arthur Willard Fairbanks, M.D.

Notwithstanding the fact that epilepsy is one of the oldest of diseases its causation still remains a matter of uncertainty and contention, although a vast mass of literature exists concerning this particular phase of the subject.

I believe that this is due in great part to two facts. In the first place the conditions embraced in the term "Epilepsy" was for many generations regarded as a disease, *sui generi* and even at the present time this view seems to still persist, if one may judge by the argument employed by many writers, especially those who advocate the hereditary theory of the affection. In the second place, and this seems to me the more important of the two facts, the great majority of published statistics deal with cases studied in adults, or present data obtained from clinical material of all ages.

It is the main purpose of this paper to show that the truth concerning the cause of the majority of epileptic cases cannot be determined by the exclusive study of adult material, while the inclusion of the incomplete data obtained from such cases, with the more accurate data obtainable from the parents in the case of the child, cannot fail to lessen the value of the latter, and lead to erroneous conclusions as to the real incidence of acquired epilepsy as compared with the inherited affection. To return however for the moment to the first proposition. It would seem trite to say that epilepsy is a condition not a disease, were it not for the evidence that the old conception continues to prevail. Epilepsy cannot be regarded as a disease in the sense in which the term should be strictly employed. The longer one studies the cases that come under his observation the more he will find it impossible to give a concise and unqualified definition of any clinical entity, or in other words a disease that as such may be termed "Epilepsy," and the stronger will become his conviction that the state so designated is merely an instability of the central nervous organization; an inability of the nerve centres to maintain their equilibrium in the presence of either ordinary or extraordinary stimulation from without. The frequency, the persistency, and the degree of this instability of the central nervous system furnish us with a convenient basis of classification, which is however merely a convenience, and in no respect a justification for arbitrary nosological differentiation.

The real question of moment in any single case is not "Is this epilepsy or is it not?" but "Why does this individual's central nervous

system respond in this manner to these stimuli, wherever they may arise or whatever their nature may happen to be, when the central nervous system of other individuals does not so react?"

From this point of view all of the innumerable exciting factors of the individual attacks, so often emphasized as of importance in the etiology of epilepsy, become immaterial in so-far as the solution of the real cause of the unstable state of the individual is concerned. They are merely the immediately exciting factors that for the moment overthrow the poorly balanced nervous system. Over-emphasis of these exciting factors of individual epileptic or eclamptic attack serves rather to cloud than to clarify our understanding of the fundamental cause of the condition. Innumerable articles have appeared, and are constantly appearing, in medical literature, the sole purport of which is the attempt to prove this or that exciting factor the real or fundamental causation of epilepsy. This tendency, persisting even at the present time, is to be deplored, for it only delays the recognition of the fact that every conceivable external stimulus may be sufficient to overthrow the static balance of the central nervous mechanism when its static balance is below the normal average of stability, and only then. What are the conditions that are responsible for this defective equilibrium? We must first consider the conditions that make the normal development of stability impossible. In the first place the parent cells may not be endowed with those inherent qualities that permit the ultimate attainment of relative stability in the developed organism. In such instances the instability is inherited. It is of course impossible to assert the existence of this inherited instability unless there exists in the history of the ascendents of the individual positive evidence of similar instability.

Second, given parent cells with normal inherent stable qualities, some influence such as trauma or disease in the mother, (or in the placenta, after the third month) may be brought to bear on the embryo in utero to impair the development of the central nervous system, and consequently to prevent the evolution of stability. Such injuries to the embryonic development, if they occur during the first three months of pregnancy, may be evident otherwise in the form of anatomical defects or malformations, and, even later, abnormalities in the pregnancy, especially those associated with insufficient room in utero for the proper developments of the foetus, (as in the case of twins) may produce marked anatomical defects, particularly microcephalus. In the absence of such gross defects, only the history of some disturbance of the normal course of pregnancy will suggest the possible injury of the embryo. Any condition however that has retarded the cerebral development of the foetus at any time during the first eight months, is extremely likely to produce some degree of microcephalus, evident at birth. When present it is extremely suggestive of some disturbance of the normal conditions of pregnancy. It may be relative to the otherwise normal physical development of the child or it may be but a part of a general defective physical development. Its importance as far as antenatal origin is concerned lies in its being present at birth. Premature termination of the pregnancy, by sending the child into the world in an immature and therefore unstable state, is also occasionally an undoubted factor.

Third, with the embryo normally developed, there still remains, as a possible factor in impairment of stability, the incidence of trauma and disease. The period of birth is the time in the life of every child when the brain is exposed to the greatest danger. It is at this period, therefore that we would expect to find the origin of structural damage of the brain, and in fact do find frequent evidence of such structural damage, with a history of some abnormality of birth as a probable cause of the injury.

Let us consider some of the incidents of birth that may cause injury to the cerebral structure. An unusually large head passing through a pelvic strait of normal diameter may require so much compression of the cranial bones that injury to the cranial contents is unavoidable, or a normal head of average diameter passing through a pelvic canal of minor diameters may entail similar damage. Then also a normal head may be forced through a normal pelvis with such rapidity by unusually forceful contractions of the uterus that there is no time for gradual accommodation of the cranial bones to the passage through which they must pass and rapid cranial compression occurs without consideration for the safety of the underlying brain and serious damage results. This I am confident is not rarely a cause of injury. It is however usually overlooked because the labor is described by the mother as "an easy one" and this is accepted as evidence that it has also been an easy one for the child, which is by no means necessarily the fact. I have had reason for years to regard those labors in which the child is born after a few short strong pains, often before the accoucheur's arrival, as by no means favorable for the child. The greatest care must be observed in taking the birth history of a child not to too readily accept the mother's assurance that the labor "was normal." She is referring to her own experience rather than to that of the child. Not infrequently, when we have received assurance that the birth was normal, it will be found by careful enquiry that, as a matter of fact, the child was more or less asphyxiated, and that some effort was necessary to induce respiration. Such a fact must be given full value as a possible source of cerebral injury. Also in labors in which the baby is born before the physician's arrival the

possibility of a twisted cord with its secondary effect on the cerebral circulation always should be borne in mind. In other instances owing to inertia or to minor pelvis in the mother, or to a large head, etc., it may become necessary to apply forceps, which may produce cerebral damage directly, or indirectly by rapid extraction of the head before it has an opportunity to adapt itself to the passage through the pelvis.

In breech presentations with rapid delivery of the after-coming head there may be resultant injury either directly by compression or through venous engorgement consequent on the delayed delivery of the head. Long delay of an otherwise normal labor by premature rupture of the membranes may also be attended by cerebral trauma. Often when we do not obtain any positive history of abnormal labor from the mother we may see positive evidence of it in the child in the shape of gross cranial deformity, or by the presence of cranial scars, or spastic paralysis, convulsions during the first few days or weeks subsequent to birth, or by marked delay in the early development of the infant. The numerous contingencies, above referred to, indicate how great is the danger to which the child's brain is exposed during birth.

After birth there exists throughout the years of childhood the incidence of trauma and disease as cause of cerebral injury. The permanent structural damage produced by diseases that directly affect the brain, as meningitis, encephalitis and hydrocephalus, is a matter of common clinical observation, while it is by no means a rare clinical experience to observe the serious injury done to the central nervous structure by the infectious diseases, either directly by the action of their toxin or indirectly through vascular lesions. All of these many sources of acquired cerebral damage must be considered when we are searching for the etiology of chronic cerebral disturbance or defect.

We find that they are the most common factor in the production of spastic paralysis and of mental deficiency in childhood, and we shall find that they are the largest single positive feature of the histories we obtain in the study of epileptic children.

I have selected 175 cases of epileptic children in which accurate data in reference to the family and personal history were obtained, and careful examinations were made for objective evidence of cerebral injury or physical defects. These cases were chosen solely on account of the completeness of the historic and clinical data. Otherwise they were taken consecutively in the order of their first visit to the hospital. They comprise children up to the fourteenth year inclusive.

In a critical study of these cases with reference to the etiology we find that the most careful enquiry revealed, in only 12 instances, any trace of convulsive attacks or of petit mal in the ancestors or in other members of the family.

In all of these cases however the hereditary taint was pronounced and in striking contrast to all of the rest of the series. Two fathers were epileptic; one mother had petit mal in childhood and another convulsions in childhood and two of her children, brothers of my patient, died in convulsions in early childhood. In another instance the parents were unaffected but another of their children died in convulsions and two cousins were epileptic. In the case of a child of 3, a maternal cousin, a boy of 10 was epileptic and a paternal aunt insane. The rest of these cases presented an equally marked familial taint. It is an interesting fact that only two of these children presented other evidence than the epilepsy of cerebral defect, namely, mental deficiency, and one of them born prematurely and the other by the use of instruments. They were the only instances of this series in which there was anything abnormal about the birth. The familial taint was definite however in both cases. In none of this series was spastic paralysis present.

One case I am unable to classify, but it should perhaps be mentioned here and may belong to the hereditary series. This was a child of 8 years, whose paternal uncle was epileptic. The boy presented marked degenerative stigmata, in the form of web fingers, supernumerary toes, cryptorchism and hypospadias. In addition he was hydrocephalic and had Hutchinsonian teeth. He was born after severe prolonged labor with the cord twisted about his neck, and he was idiotic and diplegic. The convulsions appeared immediately after birth lasting all night, and recurred for twenty-one months with great frequency, and thereafter infrequently to the eighth year. There can be no doubt that this child was injured at birth but there is equally little doubt that there was a syphilitic as well as a familial degenerative taint.

I do not find among my cases any that can be ascribed to disease during pregnancy, with the exception possibly of some of the syphilitic cases which will be considered in a class by themselves later.

Two cases were exposed to trauma during pregnancy by the attempt to induce miscarriage which had been successful several times previously. Both cases were born at term. Both of these children showed other indications of cerebral injury. One was feeble-minded, and had strabismus, the other increase of the deep reflexes and unsteady gait. In two cases trauma was undoubtedly the cause of premature birth. These will be considered under that classification.

In four instances the children were the product of twin pregnancies. All were born at term. Two presented other signs of organic brain defect. One was a light case of mental deficiency and showed a hemiparesis, the other

was mentally defective. In both of these cases, and in one of the others the other twin died in early infancy.

In only one case was it possible to ascertain whether the patient was the first or second delivered. That one was the first born, the other child dying at 7 months of "weakness."

In six instances the children were born prematurely, 2 at 7 months, the others at 8 months. In two of these instances the mothers suffered falls in the fifth month of pregnancy (one 7 months child) and in the seventh month of pregnancy (an 8 months child) respectively. Both of these children were feeble minded, and one was also blind. The others presented no cerebral defects except the convulsive attacks. One child however presented anatomical degenerative stigmata, in the teeth, face, palate, and ears. Beyond the statement that the mother and her family were "nervous" there was an entirely negative family history in this case.

In 43 cases there were conditions during the birth of the children that exposed the brain to extraordinary danger. Of these, 14 were born after severe or prolonged labor, by the aid of forceps, but not asphyxiated. Of these, 8 were feeble minded, 3 were hemiplegic, 1 was diplegic, and 2 showed marks of cranial trauma at birth. Both of the latter were feeble minded, as were also the diplegic and one hemiplegic, and are included among the 8 mentioned as mentally defective. Ten were born by the use of forceps and were asphyxiated. Of these, 4 were feeble minded, 3 were hemiplegic, one paraplegic, and 3 showed definite marks of cranial trauma at birth. Two of the hemiplegics and the paraplegic were mentally defective, as were also 2 of those presenting evidence at birth of cranial trauma. One case was not only feeble minded and hemiplegic but also showed marks of cranial injury. One of the series was one of twins, the other child being still-born, and this may also have been a factor.

Six were born after severe labor but without the use of forceps and as far as known not asphyxiated. Of these 4 were feeble minded. None of them were paralytic.

Four were born after severe labor, without forceps, and were asphyxiated. Of these, 2 were feeble minded and one of these was also paraplegic.

Two were large children born, after severe labor, with forceps. These presented no cerebral defect other than the epilepsy.

Two were born after prolonged dry labor, and one was asphyxiated. The other child was feeble minded. Two were born quickly before the doctor's arrival. One was feeble minded and the other was hemiplegic. Of the remaining cases of this series 1 was a brow presentation with forceps delivery; another a footling, born after severe labor and asphyxiated, and the other was a placenta praevia case. These cases were the only cases in the series that did not show some evidence of cerebral abnormality, other than the epilepsy itself. Thus of these epileptic children, whose birth was in some one or more respects abnormal, 70% presented other evidence of cerebral defect than the epilepsy, and 23% presented objective evidence of structural damage of the brain in the form of spastic paralysis, and 14% presented evidence of cranial injury, two of these being spastic.

The high percentage of cerebral defects in these children, even exclusive of the epilepsy, indicates how frequent is the incidence of cerebral trauma during birth. When we consider how many births, considered normal by the mother and by the physician, may not really be so for the child, but may be attended by slight injury not producing gross evidence of its presence, we may understand how this slight structural injury may later make its existence evident in the form of epilepsy or mental defect.

Eight cases were probably syphilitic in origin. In all but two the effect of the disease was very evident in the many miscarriages and early infant mortality shown by the history. In one of the two exceptions the father acquired syphilis 7 years before the child's birth and one of his children died in convulsions 2 to 3 months old. The father of the other child died of "softening of the brain" while the case was under observation. Five of the 8 cases were mentally defective. One child of 3 years who had had innumerable attacks of all degrees of severity from its earliest infancy promptly responded to iodide of potassium, improved markedly in intelligence and no recurrence of the epilepsy occurred although the child was under observation for a year afterwards. These cases do not respond to bromide to any material degree.

Fifteen of the series had suffered cranial injury after birth and antecedent to the appearance of the epilepsy. Many of these injuries were accompanied by immediately serious symptoms; unconsciousness from half an hour to thirty-six hours, vomiting, hemiparesis, facial paresis, and in one case blindness and deafness for four weeks, while others did not seem at the time seriously hurt, but soon showed mental deterioration. One case will suffice to illustrate this. This child developed normally to the beginning of the second year when she had a fall, and three months later another, striking her right side. Mental progress ceased and when examined she showed a left hemiparesis. The epilepsy appeared shortly after the fall and was at first concentrated on the left. These cases are of very instructive character, but it is not possible within the limits of this paper to cite their details. Two of the children however might have been classed otherwise for one was premature and the other a forceps delivery, but as neither had any convulsion until after the blow on the head, and the initial attack occurred in unquestionable relationship to the trauma, they

seem properly to belong here. A greater susceptibility to cerebral trauma may have existed however in these two cases.

Twenty-two of the children were perfectly well until the onset of meningitis or encephalitis, during the convalescence, or following the recovery from which epilepsy appeared. Six of these children were feeble minded and 6 were hemiplegic.

Five cases could be traced to an attack of pertussis, in two instances at the age of a few weeks, in one at sixteen months, and in two at two years. One was hemiplegic and one had strabismus. If these cases owe their origin to pertussis as seems probable, the damage to the brain was undoubtedly circulatory not toxic. In a somewhat different class are the next four cases which originated from infections, two during dysentery, the others following diphtheria and measles. It is somewhat difficult to determine the manner in which the cerebral trauma was caused. In one of the dysentery cases the severity of the symptoms indicate meningo-encephalitis, the 2½ year old child having lain for eight days unconscious, with retracted head. None of these children were spastic, one had deteriorated mentally since the measles, was under observation seven years, and finally committed to an institution.

In 53 cases no definite etiology could be determined. 23 presented evidence of cerebral defect other than the epilepsy, 14 feeble minded, (several showed cranial deformity) 7 hemiplegic, 1 paraplegic and 1 hydrocephalic. Thus a considerable number of these otherwise unexplained cases presented objective evidence of cerebral defect or deficiency, the result of trauma or disease.

The study of these 175 cases confirms an opinion I have held for many years, as the result of the observation of many hundred epileptic children, that heredity is a minor factor in the etiology of epilepsy, whenever the disease is studied at such an age that the true details of the past and family history of the victim can be obtained. These data are obtainable in the case of children to an infinitely greater extent than when the disease is investigated only in adults. Both the data and physical examination of epileptic children indicate that the affection in the majority of instances is the result of acquired cerebral injury from trauma or disease.

XIV.

Hemorrhage Following Tonsillectomy.

By F. E. Garland, M.D.,

and

D. Crosby Greene, M.D.

There is a wide variance of opinion among medical men in regard to the frequency of hemorrhage after tonsillectomy. Some men of large experience report but one or two cases of hemorrhage in a thousand cases operated upon. Others, who have done an equal amount of work put the number much higher,—one hemorrhage to very hundred, or even fifty, tonsil operations.

There are several ways of explaining this diversity of opinion. In the first place, those who operate mainly on adults, will have more bleeding cases than those whose work is confined chiefly to children. Secondly, what by one man would be considered an alarming bleeding, would be regarded by another operator as a necessary incident of the operation. Thirdly, hemorrhage cases are not by any means always fatal, and often escape the notice of the operator. He perhaps notes that the patient is very pale for several weeks following the operation, but the true cause is not suspected.

Why one case bleeds and another does not is a perplexing question. One thing is certain, however, and that is that the bleeding is not necessarily due to excessive trauma or careless cutting of the constrictor muscle. In practically all of the cases we have seen, which number about one hundred, the bleeding has occurred following easy operations where the tonsillar fossae and pillars of the palate remained entirely intact. A possible explanation, which we have been unable to verify, is this: there is often noted in the fossa after removing a tonsil, a plexus of small veins due possibly to chronic inflammation. It is possible to conceive of the knife or snare splitting open one of these veins longitudinally so that in the movements of the throat, the forming clot is continuously expelled from the remaining part of the vein, and bleeding is produced.

Be this as it may, it seems to us that the bleeding is more often venous than arterial. Small arteries which are seen pumping in a throat just after removing the tonsil, usually cease bleeding in a few minutes and do not require ligating.

The dangerous type of bleeding, the kind which goes on to exsanguination and death, may be described as an ooze. This continues for hours without giving any of the test-book symptoms of hemorrhage. The blood may be expelled by coughing, but the half-conscious patient more often swallows it. Accordingly, unless vomiting occurs, hemorrhage may continue without the slightest evidence. We have recently seen such a case in which the nurse, of more than average experience, did not detect bleeding until ten hours after operation. She noticed that the patient, a child, swallowed frequently, but not until a large quantity of blood was expelled from the stomach did she realize the danger.

This, then, is an alarming situation. If we wait for the marked symptoms of hemorrhage, our patient's condition is very serious, and we should occasionally have a fatality. Such a condition is absolutely unwarranted. Death from hemorrhage ought never to occur. We believe that safety from this danger lies in a careful

inspection of the patient's throat at intervals after operation. Although such inspection may not disclose the actual bleeding point, owing, in the first place to the obvious difficulties in the way of obtaining a good view of a semi-conscious patient's throat, and secondly, the fact that the bleeding may be low in the fossa and thus escape detection, there is one sign which is unfailing in these cases, and that is a clot which forms in the fossa above the bleeding point. This clot is always present, and its presence is sufficient evidence of bleeding. When removed it quickly reforms. This danger signal appears at the beginning of the bleeding, and not as most signs do, when death is near. By careful observation of the throat and an early detection of the clot, we are enabled to deal immediately with the situation. We do not wait for other signs, but at once reapply our ether, and suture the pillars. This process takes about three minutes, and as but little blood is lost, the patient's recovery proceeds in the usual manner.

XV.

POLIOMYELITIS. OPERATIVE TREATMENT.

BY ROBERT SOUTTER, M.D.

Most of the cases of poliomyelitis fortunately can be helped by simple means such as active and passive exercises and massage, muscle training, temporary braces, mechanical stretching etc. The many cases that require operation form but a small group when compared to the total number of cases treated by other methods. Where simple methods of treatment are not sufficient muscle and tendon transplantation are often of great value.

Nicolodoni was the first to introduce this method in the treatment of poliomyelitis. Since then many operations have been devised to supplant and improve muscle and tendon transference so that today the cripple can not only be relieved of his deformity but many useful operations have been originated and developed which aid in his locomotion.

The relief of deformity is important and must not be lost sight of. Operations for the increase of function should next be considered. These operations are applicable to all cases of misdirected muscular action, whether due to trauma, to cerebral paralysis, to paraplegia, to poliomyelitis or to congenital deformities. Some of these operations of temporary value are done to allow the weak or partially paralyzed muscle to regain its strength or to prevent deformity and contractures during the process. Skin flap and silk ligaments are operations of this class. The value of an operation in poliomyelitis may be better understood if we group the types of cases according to the paralysis remaining. Omiting those cases that recover completely from their temporary paralysis we have five classes; Those that may obtain a return of function by muscle training; those where a restoration of joint balance requires a redistribution of the muscles by a tendon or muscle transference; Those where the balance is so upset that a transference, while it may take up the lacking motion and lacking antagonism, is not sufficient to keep a lateral balance. In this type silk ligaments, astragaectomies, arthrodesis or other operations may be used. Again we have a class in which there are muscles not paralyzed but not of sufficient number or strength to allow a division and transfer. In this type the joint may be balanced by silk ligaments and the remaining muscles become useful in part or the whole of their arc of motion. Today even when the paralysis is complete about a joint much may be done by skin flap, periosteal flap, silk ligaments or some other plastic operation such as arthrodesis or in the case of an ankle, astragalectomy.

The material we work with in poliomyelitis is often so poor that it is really remarkable to get the results we do. The trophic disturbance is often such that healing and firm union of the soft tissues takes much longer; resistance to infection is less, the slightest pressure during healing affects the result, poor approximation of the tissues is paid for by very slow, granulating wounds, the latter may remain granulating for weeks and then heal, all the time inviting infection. While infection is not common, the most scrupulous care in detail is required of these cases and more precautions are necessary than in the usual operation. The incision should be as small and vertical as possible and made with care, both as to the manner of penetrating the skin layer and as to the direction of the vessels.

In the early years of transplantation there were many failures and some that seemed good at first later were not satisfactory. This was accounted for by the fact that a tendon to tendon transfer was the rule. The good tendon stretched out the weak insertion and the power of motion became lost. Tendinous insertion is preferable where it may be done. This method is advocated by Vulpius. Periosteal insertion obviates many of our difficulties. Since the introduction of silk as a tendon by Lange in 1902 this method of tendon elongation with its periosteal, sub-periosteal and even bone attachment has relieved the cause of many of the previous failures. The silk acts as a good tendon and about it a firm cylinder of fibrous tissue forms which re-enforces the silk and acts as a tendon in itself. There are few operations where technique is of more importance than in tendon or muscle transference and silk ligaments. The action of the muscles must be well understood and carefully tested; the operation

studied and laid out for each individual case, the line of pull made as direct as the desired motion requires. With care the belly of a muscle may be transferred some distance. The muscle selected should be strong. Weak, degenerated muscles ought not to be transferred as they simply bring discredit to a procedure that is good and helpful. The attachment should be firm, not likely to slip or pull out. The silk itself should be tested before use and in situ, the limb put in such a position and the transferred muscles so placed that there will be no slack to mar the results. Muscles too weak to take up fully the desired motion may be transferred exceptionally for locking a joint. For instance, the tranfer of two weak hamstrings, although not sufficiently strong to extend the lower leg, may be sufficient to lock the knee in walking and standing and allow a certain amount of flexion in sitting. Paralyzed muscles should not be used for this purpose on account of their almost endless tendency to stretch out. Beside the many and varied muscles that may be transferred the following muscles, when large and vigorous, give pretty uniform success when transplanted, the pronator-radii-teres, the flexors and extensors of the fingers, the hamstrings forward, the peronei, the sartorius, the long flexors and extensors of the toes, the tibialis posticus and anticus.

The opponents of the muscle to be transferred should be carefully considered and balanced. In other words, a small, weak, transferred muscle should not be expected to be of value when opposed to a strong, healthy group. Enough must be transferred to give good balance.

The tranfer is more successful when the lateral stability of the joint is maintained by good muscles or by natural or artificial ligaments. The individual not interested in mechanics to a minute degree should not transfer muscles or endeavor to place silk ligaments but once the technique of the operation is well mastered a prolonged study of the single strong muscle in various extensively paralyzed cases will help more toward successful transplantation than any one other thing.

Since the introduction of astragalectomy the lateral stability of the ankle joint can always be obtained without stiffening the joint. This gives us one of the most valuable operations known in the treatment of paralyzed ankle muscles. It also gives us a method of obtaining the lateral stability where a transplantation is desired but otherwise impossible on account of lateral weakness. The cripple must be given a limb on which he can trust his weight. Misdirected muscular activity may be advantageously corrected by transplantation, which gives the desired motion; more should be done if alone this does not give a stable limb well balanced for weight bearing. In a child the calculation should be made for the probable future weight, both from natural growth and lack of activity. Silk ligaments may be used early to maintain position of the joint, later to maintain antagonism to existing muscles that unopposed would contract and cause deformity and themselves become useless. They may be used as an aid to stability of the joints as in toe drop combined with a lateral lack of stability. They are also of use to stiffen the joint. These ligaments should not be used to prevent a varus or valgus due to bony deformity where the weight is over balanced and out of line nor where the varus or valgus is due to the strong contracture of muscles. Except in these instances with proper technique silk ligaments give the greatest satisfaction to the patient and surgeon. Wherever silk is used crescentic incisions should be made and care taken to have several layers of tissue overlapping the silk insertion, the latter being placed under the flap some distance from the line of incision.

The after care of these cases is quite as important as the consideration before operation. Motion may be encouraged early under observation but strain in the early weeks must be prevented for two months by plaster and for six or eight more by suitable braces. After this, braces are used that allow motion but limit its arc. Silk ligaments and muscle and tendon transplantations, followed by careful after treatment and muscle training give us a most effective means of aiding the extensively paralyzed and deformed cripple. We can correct deformity, make up for loss of function, maintain corrected contractures and displacements and overcome much of the atrophy and do away with many braces. In all the severe cases a benefit can be expected and in many of the light cases a practical restoration of functional usefulness.

XVI.

The Importance of the Early Recognition of Acute Arthritis of the Hip-Joint in Infants.

By Arthur T. Legg, M.D.

The recognition of the presence of an acute septic process in the hip-joint in infants would seem to give very little difficulty, but the number of cases seen in which the condition during the acute stage was not recognized, shows that the importance of its early recognition cannot be too strongly emphasized.

The condition, as is well known, follows any of the acute infectious diseases, such as pneumonia, measles and scarlet fever, intestinal autoinfection or from a septic process elsewhere, and starts as an infectious synovitis or an epiphysitis which breaks through into the joint; and, as

in all acute infections of the joints, is characterized by limitation of motion, tenderness, thickening of the joint, and fever, with high white count.

The great difficulty in the early diagnosis comes from the fact that infants unable to express themselves can show only in a general way the location of any trouble, and the general intoxication, especially at this age, is so great that the local condition is often entirely masked.

Cases in which the condition has not been recognized are usually brought for advice on account of a limp noticed when the child began to walk, with a history of having had an acute abscess of the upper thigh accompanied by more or less prostration and high temperature, when an infant, the condition at the time having been considered a superficial abscess of the soft parts, which was simply incised or allowed to rupture spontaneously.

Examination of these cases will show a limp identical to that of a congenital dislocation, with a half inch to an inch shortening of one leg, and a cicatrix of the upper thigh, usually about the trochanter, where the abscess pointed or was incised.

Roentgenological examination of these cases will show dislocation of the affected hip with absence of the head and a portion if not the entire neck of the femur, showing that during the acute process, the head and a portion of the neck were destroyed by the septic process, and the abscess breaking through the capsule allowed the remaining upper end of the femur to dislocate; the abscess, after rupturing the capsule, pointing in the upper thigh.

In those cases seen soon after the onset, a common history given is that the apparently well infant became suddenly irritable, cried constantly when bathed, and had considerable prostration and fever; or if the condition comes on more acutely, the first symptom noticed may be a convulsion followed by symptoms typical to an acute meningitis.

Given these histories and symptoms, it is quite natural that a local condition in the hip is not at first considered, and these general symptoms may continue to predominate the local symptoms for some days and a diagnosis of a beginning acute infectious disease or an anterior poliomyelitis is often made.

It is not until after careful watching and a very complete physical examination is made that the true condition is recognized; and even this at times is most difficult in an irritable infant where all attempts at examination are resisted.

The classical symptoms as already mentioned, of local tenderness, limitation of motion, and thickening of the joint, are often masked by the general condition of the infant. As regards local tenderness, the infant may seem to be in pain when any part of the affected leg is touched, and no one region can be made to show more tenderness than another. While the affected hip usually shows more or less limitation of motion from spasm, motions of the unaffected hip may be equally resisted. To palpate joint thickening is at times very difficult, especially in an infant where there is much fat about the pelvis; but this can generally be made out if both trochanters are grasped and a careful comparison of the thickness is made. In some cases, the recognition of this joint thickening is the only positive means of recognizing the condition except by the roentgenogram. Examination by this method will show in the very early cases a markedly dilated joint capsule, with the head of the femur usually thrown out to the brim of the acetabulum; or, in cases which have gone on for some time, the head will be seen free in the joint or entirely disintegrated.

Just how soon the head will be freed from the neck of the femur or entirely destroyed by the septic process depends upon the severity of the infection and the mode of invasion. That is, those infections starting at the epiphyseal line will free the head more readily than those starting as an infectious synovitis; but that it may be freed very early is evidenced by the fact that in one case operated upon by the writer, the head was found free in the joint four days after the onset.

It is on account, therefore, of this early separation of the head from the shaft, followed by destruction and dislocation, that the early recognition of this condition is of the greatest importance, that immediate surgical interference may be instituted; for early incision and evacuation of the pus in the joint will in many cases save the femoral head, or if the head has already been freed or destroyed, dislocation of the remaining neck, by maintaining it in its normal position, may be prevented.

XVII.

THE DIAGNOSIS OF ENLARGED THYMUS AND THE SYMPTOMATOLOGY OF HYPER-THYMATISM.

BY PHILIP H. SYLVESTER, M.D.

THE diagnosis of enlarged thymus lies in finding it. The greatest difficulty in its diagnosis lies in not being on the lookout for it. The following cases are illustrative:—

CASE 1. W. B. C. Male, 14 months old; only child of well parents.

Past History. Full term, normal delivery, breast fed for six months, then on various mixtures. Always did well but has had a lot of colds. Has had no serious diseases.

Present Illness. Child had been "choking to death" for ten minutes after a cent, with which it had been playing, had disappeared.

Physical Examination. Well developed and nourished child in rather urgent dyspnea, cyanotic, inspiration slow, retraction of interspaces, supraclavicular and sub-sternal, expiration difficult as well. Ten teeth in good condition. Tonsils a little large, not inflamed, no particular enlargement of adenoids. Epiglottis altogether too small to have admitted a cent. Lungs full of coarse râles, some piping. Expiration a little prolonged. Heart not enlarged, sounds regular, good quality, rather rapid. Spleen not enlarged. No superficial glandular enlargement. Examination not otherwise notable.

The dyspnea being evidently of tracheal origin and not so urgent as to demand intubation or tracheotomy, a Roentgen photograph was taken with the idea that the cent had probably lodged in the esophagus in such a way as to press on the trachea. A large thymus was shown, but no cent.

(Photograph.)

The cent was found under the corner of the rug. A more careful physical examination showed a shield-shaped area of dullness to threshold percussion just below the clavicles and continuous with that of the heart, approximately 4 cm. to the left of the median line and 3 cm. to the right.

The child's mother, on further questioning, stated that the child had been having bronchitis for three or four weeks, during which time it had "choked up" on several occasions.

The child's dyspnea became more urgent that evening and on the following day he was admitted to a local hospital, where he received six Roentgen treatments of five minutes each at intervals of one week. In the first two weeks he was intubed twice for collapse in dyspnea. He was discharged, well, with no lung, tracheal, or thymic signs at the end of eight weeks.

This case taught me two lessons that have been valuable since:

1. To think of thymus in cases of infantile dyspnea suggesting laryngeal stenosis or obstruction.
2. To take more pains with the history even when in a great hurry.

Case 2. M. S. Female, 9 months, younger of two children. Parents well.

Past History. Full term, normal delivery, breast-fed for 5 months, then various mixtures; now getting about a 4.50—7—1.50—6 feedings 8 ounces. Is satisfied, never vomits. One movement is usually obtained daily by suppository or milk of magnesia; it is usually hard, brittle, very light colored and "smells very strong." The child has looked pasty since a short time after bottle feedings were begun.

Present Illness. Has been having bronchitis for six weeks, is better some days, worse others. Has had some rattling in chest all the time. Does not sit up much and does not try to talk. (Mother is also anxious about the teeth, as the persistence of the bronchitis has been ascribed by the family physician to teething.)

Physical Examination. A fairly developed, well nourished appearing but flabby child. Pasty color. Anterior fontanelle 1 inch by 1 inch, level. No teeth. Tonsils about the average, a little red. No snuffling or nasal obstruction. Ears negative. Lungs, good resonance throughout in back and front except that over upper portion of sternum and extending laterally is an area of dullness to threshold percussion 3½ cm. to the left of median line, 2½ cm. to right and connected by a fairly wide isthmus (vessels) with cardiac dullness below. Pressure on the inner ends of the clavicle, or over the manubrium causes an abnormal amount of tracheal compression. Lungs full of fine râles, mostly on expiration, which is prolonged as in ordinary asthma. Heart not enlarged, no murmurs, sounds good quality. Abdomen soft, contains a little more gas than usual. Liver not enlarged. Spleen not felt. No superficial glandular enlargement. Moderate rosary and slight enlargement of epiphyses of wrists and ankles. Physical examination otherwise not notable.

Diagnosis. Enlarged thymus, thymic asthma, rhachitis, fat over-feeding.

Subsequent History. Roentgenogram showed a shadow a trifle larger than the area of dullness, but corresponding so closely with it there could be no question as to the diagnosis.

The child received seven exposures of 5 minutes, at intervals of four days. After the fourth treatment I went away for two weeks and on my return the lungs were clear and there was no dullness other than that attributable to the large vessels. The mother stated that the child's breathing steadily improved after the second treatment. The child's appearance also improved greatly, but I am inclined to blame the correction of the food (to 2—6—2.50) for that as much as the involution of the thymus. There has been no recurrence of any symptoms referable to the thymus in two years.

Case 3. Clara M. Female, 22 months, youngest of five children. Parents well. No recent contagious diseases.

Past History. Full term, normal delivery, breast fed for 2 days only, then various modifications. Always did well as far as digestion and nutrition are concerned, but has been a little slow in mental development. Had measles very lightly at 14 months. Seems cold most of the time and gets blue when exposed to cold. Has had asthma most of the time for about a year. Attacks last some times over three or four weeks, during which the child gets quite blue. Has never had any "choking spells." Is seldom free from asthma for more than a few days at a time. Has not had many colds.

Present Illness. Has been having asthma for about two weeks with less remission than usual. Has become obviously tired. At times pulls on a chair or bed clothes to get her breath. Is losing weight. Has no appetite. Has not seemed feverish.

Physical Examination. Well developed, fairly nourished. Skin shows many fine wrinkles. Anterior fontanelle closed. Ears negative. Child in rather urgent asthma with prolonged expiration accompanied by wheezing. Twelve teeth. Tongue clear. Tonsils small, ragged, not inflamed; no apparent adenoid enlargement. Lungs, good resonance everywhere except that over upper sternum is an area of dullness to threshold percussion about the shape of the palm of the hand, extending 3 cm. to the right of mid-sternum and 3½ cm. to the left,

and about 5 cm. down, distinctly separated from the cardiac dullness. No D'Espigne's sign. Lungs everywhere full of bubbling râles on inspiration, which is short and gasping, and of piping as well as of bubbling râles during expiration, which is much prolonged. Heart not enlarged; action very rapid, no murmurs made out, quality good. Abdomen examination difficult as child refuses to relax. No enlargement of liver or spleen to percussion. No superficial glandular enlargement. Examination otherwise not notable.

Diagnosis. Thymic asthma.

Roentgenograph showed shadow about as on percussion, but apparently a little larger.

Child received five daily treatments of five minutes, then three of five minutes at intervals of four days. Was distinctly worse after first treatment, but began to improve after the second and continued to improve until the fifth treatment, when the asthma completely cleared up. Has had no further symptoms for nine months. Two weeks after the last treatment no thymus was noted by percussion. No plate was made at the last treatment, and the first plate is not now available for this paper.

CASE 4. T. T. Male, 19 months, only child, no miscarriages. Parents well.

Past History. "Eight months' baby," birth weight, 8 pounds. Breast fed for nine months, then whole milk and infant diet. Has had frequent colds. Tonsillitis several times. Otitis media on both sides at one year. Has looked pasty for about a year and does not seem as lively and bright as other children of same age in the neighborhood.

Present Illness. Cough and cold for about two weeks. Parents wish to have determined the cause of child's poor appearance; think his diet ought to be regulated.

Physical Examination. Well developed and nourished. Color, bluish white as in excessive fat feeding. (Later examination of stools showed nothing abnormal.) Anterior fontanelle admits tip of finger. Tongue clean. Throat red. Tonsils large and ragged, not inflamed. Pharyngeal wall studded with "warts." Adenoid visible when palate is raised. Ear drums wrinkled. No light reflex, no retraction, no fluid. Ten teeth. Lungs, uniformly good resonance except over sternum where to threshold percussion is a fat sausage-shaped area of dullness extending from mid-sternum to 4 cm. on the left and 3 cm. on the right, joining the cardiac dullness below. On crying, during expiration, a soft mass impinges on a finger tip hooked into supra-sternal notch. Inspiration short and easy; expiration prolonged with many râles just short of wheezing. Heart not enlarged, upper border not made out on account of thymic dullness. Sounds clear, no murmurs. Abdomen soft. Lower edge of liver just felt. Spleen 2 cm. below costal border, no notch felt. Genitals, phimosis, testicles undescended. Glands, lentil size in axillae, neck, and groins. Glands on right side of neck are larger than the rest, presumably due to infected tonsils. No abnormality of nervous reactions. Blood and urine not examined.

Diagnosis. Status lymphaticus; +thymic asthma seemed here unquestionable.

Unfortunately there was no Roentgen-ray apparatus within twenty miles, and the parents refused to send the child to the Children's Hospital for Roentgen diagnosis and treatment, in spite of my warnings as to the dangers of the condition. Six months later I learned that the child died without apparent cause while playing in his sand pile, previous to which he had coughed and wheezed a great deal.

CASE 5. E. T. Female. Five months old, youngest of three children. Family well. No contagious diseases.

Past History. Full term, normal delivery. Birth weight, 9¼ pounds. Is breast fed. Has had no digestive disturbance except for difficulty in nursing owing to the rapid breathing. Has gained slowly but consistently. Tends to be constipated; has always "breathed hard."

Present Illness. Comes for examination. Mother thinks child has growth in throat which has caused this hard breathing since birth. When nursing, the child cannot breathe through the nose, but sucks once or twice, then gasps for breath, breathes rapidly three or four times, then sucks once or twice, and so on. Has never been blue, but has wheezed of late.

Physical Examination. Well developed and nourished. Weight, 14 pounds, 4 ounces. Breathes quietly when undisturbed, but with distinctly more expiratory sound than is usually heard. When handled or disturbed breathes much more rapidly and noisily, especially during expiration. No wheeze noted. Anterior fontanelle three-fourths by one-half inch, level. Ears negative. No teeth. Throat not red. Tonsils not unusually large. Small adenoid felt. (No obstruction.) Lungs, good resonance throughout except in region of upper sternum, where there is a shield-shaped area of dullness to percussion (ordinary) extending 3 cm. to the right of mid-sternum and 2½ to left, and continuing down into area of cardiac dullness.

Pressure over supra-sternal notch and over manubrium increases the harsh sound of breathing. Lungs have few râles. Expiration is harsh, prolonged and high pitched with coarse moist râles, no piping râles and no wheezing, but type of breathing is asthmatic without the wheeze. Heart not enlarged. Sounds rapid, good quality, no murmurs. Abdomen, liver edge just felt. Spleen not felt. No general superficial glandular enlargement. Genitals negative. Physical examination otherwise not notable.

Roentgenogram showed enlarged thymus corresponding closely to area of dullness but more rectangular, relations pretty much the same.

Subsequent History. Received four exposures of 5 minutes on succeeding days. Seemed much worse after the first treatment, but symptoms were practically clear after the fourth exposure. Two weeks later no enlargement could be made out by threshold percussion. Child remained free of symptoms and gained well for four months, when breathing became again asthmatic in type, but not bad. Parents then, without consulting me, had given three treatments of 10 minutes each, three days apart. Two weeks after that I saw the child during a slight digestive upset and could find no trace of thymus or suggestion of asthmatic breathing. The child has remained well since.

The following case kindly reported to me by a colleague I add as an illustration of how easy it is to overlook an enlarged thymus, probably because we do not think of it, in the presence of dyspnea with symptoms of tracheal stenosis, and (as we usually do) make a diagnosis of laryngeal diphtheria. In this case an early diagnosis and Roentgen ray treatment might have saved the child.

Case 6. C. L. Male, 3 years, American.

Family History and Past History. Negative.

Present Illness. Past two weeks abscess in left cervical region; abscess opened by doctor and child getting well. Seen this evening at 6 p.m. and child had a hearty supper, seemed perfectly well and happy. At 7 p.m. child vomited and began to breathe hard and exude froth from mouth. About 9 p.m. child became worse, breathing very difficult. At 11 p.m. child seen by doctor and sent to diphtheria ward of hospital with diagnosis of laryngeal diphtheria. Admitted to ward at 12, midnight.

Physical Examination. A well developed and nourished child, quiet and apathetic, preferring to lie on the side; somewhat cyanotic; breathing labored with gurgling noise on respiration, no crowing sound. Child talks clearly. Marked retraction, on inspiration, of the intercostal and supraclavicular spaces. Reflexes normal. Pupils equal and react. Skin clear. Slight enlargement of the cervical glands. Discharging sinus on left side of neck just below the tip of the mastoid. Throat shows a large pair of tonsils. Large amount of bloody foam comes up the pharynx on smallest instigation. No membrane.

Heart very rapid, sounds weak and stopping. Apex unable to make out. P_2 greater than A_2. No murmurs. Pulse rapid, easily compressible.

Lungs, dullness at both bases with diminished breathing, above the dullness there are coarse, bubbling râles.

Abdomen, liver large, 3 cm. below costal margin. Spleen not felt. Soft, tympanitic. Temperature 99(?). Respirations 50, pulse(?). Antitoxin ordered, 12,000.

Patient had just received an initial dose of antitoxin of 4000 units when he stopped breathing without warning. Artificial respiration done at once and 1-40 gr. strychnia s.c. given, but without avail. The child proceeded to throw out a lot of mucus from mouth and bloody fluid from nostrils and after three inspirations at long intervals, the child died, the heart having stopped long before the breathing at 12.45.

Autopsy performed the next day shows the following salient points:

1. Excessive free yellow fluid in both pleural cavities.

2. Both lungs congested, dark, and hard to the feel. On section it exudes bloody fluid and froth. Peribronchial and root of lungs lymph nodes much hypertrophied.

3. Heart normal.

4. Thymus large, extending from thyroid cartilage down along and covering the deep structures of the neck; both lobes completely cover both auricles of heart, the length and width of the thymus gland being approximately 12 x 5 respectively.

5. Liver larger than ordinary size, dark and congested. On cut section shows markings obliterated by much fluid, very edematous. Gall bladder large, engorged with gall.

6. Spleen good size, also dark and congested.

Perhaps I ought to describe what I speak of as "threshold percussion" in the above cases. It is performed as follows: The mother, or the nurse, sits in a chair backed up into a corner of a small, quiet room (the bathroom serves very well), holding the child in her lap, the child's head hanging over either thigh. The physician starts percussion well out on the chest with such light strokes that when the ear is within a few inches of the area under percussion only the faintest possible resonance is heard. As the finger is moved care is taken to keep the percussion stroke uniform. When sound disappears dullness begins. Unless done in a quiet room and upon a quiet child this method is valueless. I have found it particularly satisfactory in determining the right border of the heart in small children.

The above cases are too few to admit of any hard and fast conclusions, nevertheless it seems fair to assum that—

1. We should be more on the lookout for enlarged thymus in cases of asthma, persistent bronchitis, and laryngeal or tracheal stenosis.

2. Inasmuch as the percussion outlines corresponded so closely with those shown by the Roentgenograms, the enlarged thymus should be found on examination by the ordinary methods of physical diagnosis, of which threshold percussion is apparently accurate and satisfactory in the hands of one familiar with children.

3. Children showing enlarged thymus present two fairly uniform sets of respiratory symptoms:

a. Those due to pressure on the trachea, as shown by cyanosis, slow, labored breathing and supra-clavicular and sub-sternum retraction.

b. Those presumably due to toxemia or hyper-secretion of the thymus, namely, breathing of the asthmatic type characterized by fairly easy inspiration and long, difficult expiration, accompanied by râles.

4. Inasmuch as in all the cases treated the symptoms for which treatment was instituted disappeared when the physical evidences of enlarged thymus disappeared, there is a causal relationship between—

a. The enlarged thymus and the pressure symptoms.

b. The enlarged thymus and the asthmatic symptoms which were obviously not due to pressure, therefore probably due to hyper-secretion.

5. Pressure symptoms and toxic symptoms may be combined in the same case, but those of the toxic type are more constant.

XVIII.

THE TREATMENT OF CERVICAL ADENITIS IN CHILDREN.

BY W. E. LADD, M.D.

AT the present time there is no uniform method of treatment of tubercular vervical adenitis adopted by the profession at large. I am writing this paper with the hope that by provoking discussion and adding my experience to that of others we may help to establish more uniformity of treatment of this disease in the future.

The methods of treatment which demand our attention at present are: Open air and hygiene alone, hygiene combined with tuberculin and palliative surgery, with X-ray therapy, with heliotherapy, with palliative surgery and with radical surgery. It will be seen that in this list of treatments, hygiene by which is meant open air, nourishing food, etc., is agreed to almost universally, and there are undoubtedly a certain number of patients who get well under this form of treatment alone. But they will not all recover under this therapy and we must consider what form of treatment added to hygiene will give us the best results.

The merits of tuberculin combined with palliative surgery, by which is meant the opening and drainage of abscesses as they occur, has been talked of a good deal during the last few years and recommended by many. Among quite a large number of cases that I have seen during the past five or six years I have been able to observe several patients treated in this way for varying lengths of time. I have always been disappointed in the results and the persistence of sinuses and the continued necessity of frequent dressings. Nor has the improvement in general condition of the patient ever been very striking to me. Of course the patients that I have seen under tuberculin treatment are only those requiring surgical care so that I may get a false impression of its efficacy. However in reviewing an article written in January, 1912, by John B. Hawes, 2nd, who is certainly an ardent advocate of tuberculin and hygiene, I find he reports twenty-one cases of tubercular cervical adenitis in children with ten apparent cures after treatment averaging eleven months in duration. He includes in his apparent cures patients in whom most of the glands disappear and whose general condition has improved. Also I note that in these apparent cures, three patients had a few small glands and two had one broken down gland. It has been my experience that such cases usually get well with treatment of the portal of entry and hygiene and incision and drainage of the single broken down gland. But even if he has made ten cures by his system of treatment, out of twenty-one patients who would not have got well otherwise that is an average of less than 50%. With this small percentage in favorable cases the position of advocating such treatment in place of good surgery appears to me untenable as I shall try to show later. These results of Dr. Hawes have interested me particularly because he is dealing with presumably about the same class of patient that we see at the Children's Hospital and in the same climate and also because I have confidence in his knowledge of the tuberculin treatment.

With X-ray therapy my experience has been limited. I have never seen a case of extensive adenitis cured by this means. It seems to me that the principle upon which it is based is irrational: namely the stimulation of periglandular tissue which prevents the gland from breaking down, encroaches on it and eventually causes its calcification. It seems to me more logical to remove the tubercular glands than to shut them up within the body. In superficial broken down glands that are slow to heal I have occasionally found the X-ray of great value, three or four exposures sufficing to cause healing. Likewise a few treatments with the X-ray will sometimes cause healing of a sinus and make possible a clean dissection of the underlying glands. In the few cases in which I have done this though the dissection has been clean it has been difficult on account of the denseness of the periglandular connective tissue. My observations on X-ray therapy though limited have coincided more or less closely in the cases with superficial infections with those of men who have used this form of treatment extensively. Thus Tousey[2] states that the Roentgen ray hastens the healing of sinuses and of tubercular abscesses which have been opened. Iselin[3] considers extirpation of tubercular glands the best form of treatment when the glands are not broken down; when they are, however, he feels that he has had very good results with the X-ray in over two hundred cases.

Heliotherapy has its advocates and apparently has yielded many good results, but is available only for those patients in this community who have sufficient means to enable them to go to high altitudes. That is the value of the sun's rays as a direct therapeutic agent is largely lost at sea level.

With palliative surgery I regret to state, owing to force of circumstances, I have had more experience than with any other form of treatment. The cases which get well under this treatment are those with single superficial broken down glands and these sometimes promptly and sometimes only after long periods of time with comparatively frequent dressings irksome to both the surgeon and the patient. In patients who have more than one gland involved which is of course far more commonly the case, palliative surgery has nothing to recommend it so far as I have ever been able to observe. In

* Read at the annual meeting of the New England Pediatric Society, December 12, 1913.

such cases the most superficial gland breaks down first, this is opened and about the time it begins to heal the next gland deeper in becomes fluctuant and requires incision. This succession of events continues until all the glands have broken down and been drained. Though the patient may eventually recover it is only after a period of months or even years and then with a neck presenting numerous and extremely unsightly and irregular scars.

What is the logical treatment for tuberculous infection of the cervical lymph nodes? We know from animal experimentation and perhaps more forcibly from the clever clinical experiments of Goodale[4], who injected coloring matter into the crypts of the tonsil and recovered it in the cervical glands, that we have to do with a descending infection. This infection has for its common portal of entry the tonsil, though we know from the experiments and observations of Stark[5] and Cornet that carious teeth may be the site of the primary focus. From other observers we find that the adenoid, the ear and the nose may though more rarely be guilty of harboring the primary infection. With these numerous sites through which the tubercle bacilli may gain entrance to the cervical glands it is not always easy to find which one is the portal of entry, but our knowledge of the distribution of lymph vessels makes it possible to avoid making many mistakes. Thus we know, for example, that the glands under the angle of the jaw drain the tonsil, the submental group the teeth and the anterior chamber of the nose etc.

Fortunately the glands most commonly infected are those in the superior carotid triangle under the angle of the jaw, and these are the glands which drain the tonsil. In these cases the tonsils should always be removed regardless of their appearance. I was surprised to find in an article by Judd[6] reporting several hundred cases from the Mayo clinic that he was able to trace the portal of entry in very few cases. He found that less than one per cent. of the tonsils examined had tubercular lesions. In my own series of forty dissections of the neck I have had the tonsils examined in sixteen cases. I am indebted to Dr. H. W. Karsner of the Pathological department of the Harvard Medical School for examining these with much care and for his report which now follows.

Histologically, unquestionable tuberculosis was found in ten of the 16 cases examined, or in 62.5%.

Grossly, the tuberculous tonsils with one exception failed to show any evidence of tuberculosis; the one exception (H. 13-233) showing in cross section numerous small yellow apparently necrotic areas, but nothing on the outer surface. The tubercles found histologically in this case were very distinctly caseous. Throughout the series the tubercles were either miliary or very small conglomerations, three cases showing no noticeable caseation, five only very slight caseation and two well marked caseation. Of the last, as indicated, one was sufficiently marked to be seen grossly in cross section, the other was not noticeable to the naked eye. The number of tubercles was either great or small, the tonsils being divided in this respect, five showing only a small number, five a great number. This point is of little significance for the results represent the picture as seen in only a few slides of each case; serial section might easily have produced a different picture. The same source of error is found in an attempt to group the cases according to situation of the lesions. From the examination of the slides, however, it was found that four cases showed a deep situation of the tubercles, *i.e.*, near the deep capsule, three showed a distinctly superficial position, *i. e.*, near the surface epithelium, and three cases showed wide spread diffusion of the tubercles. Giant cells, for the most part were frequent and typical, although in three cases they were in relatively small numbers, but, nevertheless, quite typical in morphology. The following table indicates the results:—

TABLE I.

FINDINGS IN REFERENCE TO TUBERCULOSIS.

	Position of Tubercles.			Number.		Giant Cells.		Caseation.*	Gross Evidence
Case.	Deep.	Superficial.	Widespread.	Few.	Many.	Few.	Many.		of Tuberculosis
11-1230			+		+		+	+	—
12-20		+		+			+	—	—
12-829			+		+	+		—	—
12-913		+		+			+	v. s.	—
13-103	+			+			+	v. s.	—
13-233	+				+		+	+	+
13-147	+			+		+		—	—
13-250		+			+		+	v. s.	—
13-289	+			+		+		v. s.	—
13-390			+		+		+	v. s.	—

* V. S. indicates a very small amount of caseation, — indicates a practically negligible amount of caseation, and + indicates well-marked caseation.

The tuberculous tonsils showed pathological changes in addition to the presence of the tuberculosis. Histologically, there was well marked retention in the crypts in four cases, slight retention in four cases and practically normal crypts in two cases. The follicles, particularly

germinal centres, showed slight hyperplasia in six cases, marked hyperplasia in two cases and were normal in three cases. There was moderate or well marked hyperplasia of the connective tissue in four cases, slight hyperplasia in two cases and a normal connective tissue in four cases. A review of the following table will show that of the ten cases, only one was normal aside from its tuberculous condition (13-399), two were only slightly diseased (13-829, 13-233) and the rest would have been considered distinctly pathological tonsils even had there been no tuberculosis present. Of the three only slightly diseased generally, two (13-399, 13-829) showed wide-spread tuberculosis and the third very well marked tuberculous involvement. It can not be said that there is any parallel between the degree of tuberculosis and accessory involvement. The table follows:—

TABLE II.

NON-TUBERCULOUS CHANGES IN TUBERCULOUS TONSILS.

Case.	Consistence.	Follicular Hyperplasia.	Retention in Crypts.	Connective Tissue Hyperplasia
11-1230	Soft	Slight	Slight	Moderate
12-20	Soft	Slight	Marked	Moderate
13-829	Firm	—	—	Slight
12-913	Normal	—	Slight	Slight
13-103	Soft	Marked	Moderate	—
13-233	Soft	Slight	Slight	—
13-147	Soft	Slight	Marked	Well marked
13-250	Normal	Slight	Marked	—
13-289	Normal	Slight	Slight	Well marked
13-399	Normal	—	—	—

The so-called non-tuberculous cases include those in which the few sections made failed to demonstrate histological tubercles. It is possible that serial sections might have shown tubercles and it is further possible that injections into guinea-pigs might have revealed the presence of tubercle bacilli in the tonsils. Of these cases, however, only one showed tonsils that were normal. The others showed various alterations, which singly or collectively stamped the organs as pathological. These changes are indicated in the following table. One case (13-193) was thought on gross examination to be tuberculous because the cross section of the enlarged organ showed numerous small yellow neurotic areas, but histologically these were found to be markedly distended and cystic crypts. The table follows:

TABLE III.

HISTOLOGICALLY NON-TUBERCULOUS TONSILS.

Case.	Consistence.	Follicular Hyperplasia.	Retention in Crypts.	Connective Tissue Hyperplasia
12-451	No Note	—	—	—
12-570	" "	Moderate	—	Marked
12-60	" "	Marked	Marked	Marked
13-135	" "	Moderate	Marked	—
13-215	" "	Moderate	Marked	Moderate
13-193	" "	Slight	Very marked	Slight

To summarize, it may be said that of the sixteen cases studied, only one (12-451) presented normal tonsils. Of five others, which were tuberculous, four showed sufficient retention of necrotic material in the crypts to regard them as seriously diseased tonsils. Of the ten tuberculous tonsils, all were regarded as seriously diseased because of the presence of tuberculosis and of these, seven were sufficiently diseased otherwise to justify removal.

The gross examination of the tuberculous tonsils showed nothing characteristic except in one case and the gross appearance of this case (13-233) was not sufficiently distinctive to differentiate it grossly from the appearance of a non-tuberculous tonsil (13-193) in which distention of the crypts produced yellow caseous areas in the cross section.

The tuberculous process in the involved tonsils was active and in no case was there found any attempt at encapsulation, although in two cases (12-829, 13-147) the large number of epithelioid cells and almost complete absence of necrosis gave rise to the belief that the tubercles were growing in a somewhat resistant tissue.

As far as can be concluded from the limited number of cases studied, 62.5% of cases of tuberculous cervical lymphadenitis show active tuberculosis of the tonsils. Of the remaining 37.5%, or six cases, five, or 83.3% of the non-tuberculous cases, showed pathological alteration, sufficient to justify removal, especially when it is considered that the presence of a low grade chronic inflammation may favor infection. Hence, had these tonsils remained they might have been a serious menace to the patient because of the danger of subsequent infection by a variety of organisms, including the tubercle bacillus. That these patients might be consid-

ered immune to tuberculous infection because of the attack of tuberculous cervical lymphadenitis, successfully combated by surgical removal, is not borne out by immunological studies of the disease.

These findings bring out two facts very clearly to my mind. First that there are many tubercular tonsils, which can not be diagnosed by inspection of the throat, and consequently the recommendation we hear so often made that in cases of cervical adenitis the throat be only examined is not to be commended. The tonsils should be removed as a matter of routine. Second that if anyone is still so misguided as to recommend a guillotine operation without the removal of the capsule he will probably leave the primary focus of tuberculosis in the throat. It will be seen from these facts that the first step in the treatment is the removal of the primary focus. After this has been done the question arises of how extensive a dissection of the neck is required. I feel that there has been a good deal of misunderstanding by the use of the term radical. A radical operation in the neck means to many physicians an enormous incision extending from the tip of the mastoid down to the middle of the clavicle and across to the sternal notch with the removal of all glands and gland-bearing structures underneath. I have seen such dissections dexterously performed without the removal of the tonsils followed by recurrence of the glands within three months. I do not consider such an operation radical in the true sense of the word which really means the destruction of the disease with its root. Any operation which omits the primary focus is not radical no matter how extensive. A radical operation can be performed through a small incision leaving an inconspicuous scar in the majority of cases. The incision of choice is a transverse one made in one of the natural creases of the neck as recommended by Dowd[7]. Through such an incision the whole of the superior carotid triangle can be reached easily and a part of the inferior and occipital triangles. Where the glandular involvement is very extensive the large incision is essential. This however is not very often required.

With a logical operation what results can we offer the sufferers of this form of tuberculosis? Dowd reports statistics on two hundred and seventy-five cases of which number fifty-four observed for from five to thirteen and a half years 98% were apparently cured. Forty-two observed for from three to five years 88% apparently cured. Eighty-seven patients observed for from one to three years 83.8% apparently cured. Ninety-two patients observed less than one year 85.8% were apparently cured. Of the total two hundred and seventy-five patients approximately 88% were apparently cured. He reports one death from a secondary hemorrhage from the internal jugular vein. Judd reports six hundred and forty-nine cases without any direct mortality but with one patient dying a few weeks after operation from general tuberculosis and one three months later from diffuse sepsis. Mitchell[8] reports similiar good results.

In my own small series of forty cases one patient died a few days after operation with symptoms suggesting meningitis. Of the remaining thirty-nine, thirty have been followed for periods of time from three months to two years. The other nine have been operated on too recently to suggest the probability of their cure. Of the thirty patients followed twenty-five are apparently cured by which I mean they show no signs of recurrence, no palpable glands and are in good general condition. These patients as a rule have improved very promptly in their general condition following operation. That is in a matter of about three weeks they begin to have a better appetite, put on flesh and improve in color, and do not need medical attention other than instructions about their mode of living. Of the other five not apparently cured, one shows no palpable glands but is in poor general condition though no site of disease has been discovered. Two patients had recurrences on the opposite side of the neck; one has a few small glands along the posterior border of the sterno-mastoid muscle, one has a small swelling in the scar. This gives in my series approximately 83% of apparent cures. I expect that some of these patients who are apparently cured now may have recurrences later and I expect to cure some permanently who now have recurrences so that the average will not be altered much. Of this series of cases of mine, only eleven have been operated on at a favorable time for operation, by which I mean before the glands had broken down or before sinuses had occurred. Of these eleven all the wounds healed by first intention. Nine have no recurrence. One has a few small glands along the posterior border of the sterno-mastoid and one has not had time to have recurrence.

With these facts in view I feel justified in drawing the following conclusions. That thorough extirpation of all infected glands with the primary focus yields by far the highest percentage of cures of any form of treatment yet devised.

That active tuberculosis of the tonsils in cases with cervical adenitis is probably far more common than has been supposed.

That to accomplish a cure by radical surgery requires far less time than by other means. This I believe to be a point of practical importance for although a child's time may be of small value, the time of the parent who brings the child may be of considerable value. To advocate the head of a family losing half a day a week for six months or more should be avoided when possible.

That to avoid unsightly scars and to insure first intention wounds the patients should be

operated on early before the glands have broken down.

That hygiene has a very important place in the after treatment and that the surgeon needs the cooperation of his medical brethren to help carry this out and to refer cases early.

The small size of the Children's Hospital has handicapped us considerably in the past by preventing our taking cases in promptly when the patients are in a favorable condition for operation. I hope that the new hospital will remedy this situation in part and I expect two years from now to report far better results than at present.

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[5] Stark: Revue de la tuberculose, 1896, p. 123.
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XIX.

A CASE OF LYMPH CYST OF THE MESENTERY.

BY CHARLES G. MIXTER, M. D.

The rarity with which cysts of the mesentery are met with at operation and the scarcity of accurate reports in the literature, with a careful analysis of the contents of the cyst and a microscopic examination of its wall, indicate the importance of reporting individual cases of this disease.

CATHERINE DONOVAN. Age, 4½ years. Jan 15, 1913.

Complaint. Swelling of abdomen for one month.

Family History. Father died three years ago of apoplexy. Mother and four brothers living and well.

Past History. Full term, normal delivery, breast fed 9 months. No known exposure to tuberculosis. Measles at one year. Otherwise well. Appetite good, bowels normal.

Present Illness. Three weeks ago mother noticed that abdomen was swollen and patient complained of discomfort. Given castor oil and diet was restricted without relief. Patient began to lose appetite. Child did not want to play. Abdomen gradually increased in size. No fever, no cough, no night sweats, no edema of face or legs, no vomiting or headache.

Personal Examination. Fairly developed and nourished girl, showing considerable loss of weight and pallor, breathing somewhat shallow. No glandular enlargement. Reflexes normal. Tonsils hypertrophied. Heart normal with the exception of somewhat rapid pulse, 110. Lungs showed signs of compressions at both bases, with slight dullness and with a few moist râles. Abdomen, tremendously large, symmetrical, dull throughout except for a small tympanitic area in epigastrium; 72 cm. in greatest circumference. No masses felt. Superficial abdominal veins distended. Blood examination: Hgb. 85%, white count 14,000. Von Pirquet reaction negative. Urine negative.

In spite of the fact that the Von Pirquet reaction was negative, a diagnosis of tubercular peritonitis was made and operation advised.

ETHER OPERATION.

Jan. 18, 1913. Two-inch right rectus incision near median line, peritoneal cavity opened with the escape of a small amount of free, straw colored, slightly cloudy fluid. The peritoneum was not thickened, no tubercles seen. On exploration of the abdomen a large, very thin walled, non-adherent lobulated cyst was found extending from the pelvis to the ensiform and filling the whole of the abdominal cavity. As the point of origin of the cyst could not be found on account of its size, the cyst was tapped and the greater portion of the fluid was withdrawn. Three quarts of fluid were saved, another quart or more being lost. Fluid was greenish yellow with a large amount of flocculent material and a number of clots which appeared to be fibrin, greenish yellow in color, the largest being the size of an English walnut. The wound was then enlarged and the cyst wall delivered, and it was found to arise from the mesentery beneath the first portion of the jejunum. The cyst grew laterally from either side of the mesentery and formed three lobes, two on the superior side of the mesentery and one on the inferior, the latter being the larger. The lobes of the cyst when distended with fluid lay closely approximated and the loop of jejunum beneath which the tumor arose, lay flattened out at the bottom of the sulcus. The intestine lay directly on the cyst wall, from which it could not be separated, and the only method deemed advisable was resection of the overlying loop of jejunum. Intestinal clamps were placed on the intestine on either side of the cyst, the mesentery beneath and on either side of the cyst was tied off in sections, and the cyst together with about eight inches of the adherent jejunum, was resected. A lateral anastamosis was done between the proximal and distal ends of the jejunum. The V-shaped gap in the mesentery was closed with catgut. A num-



* Read at the meeting of the New England Pediatric Society.

ber of enlarged glands were found in the mesentery, one of which was excised for microscopical examination. The abdominal wound was closed in layers without drainage and the child was put to bed in fair condition.

The patient recovered well from the operation but for six days was unable to retain any nourishment. Small amounts of liquids given by mouth might be retained for a number of hours and then the whole amount of nourishment given would be vomited in an explosive manner. No relief was obtained from gastric lavage. Bile was noticed in the vomitus. During this time she was given nutrient enemata every three hours, consisting of three ounces of peptonized milk and one dram of brandy, which were retained and absorbed remarkably well. X-rays were taken of bismuth given by stomach tube, and a dilated stomach and duodenum was found, with an apparently complete obstruction at the lower end of the duodenum, no food passing this point 48 hours after the meal was given. The temperature remained nearly normal. The pulse ranged about 90 until the fifth day after operation, when it rose to 120 and became intermittent. On Jan. 24 a further operation was deemed necessary to relieve the obstruction at the lateral anastomosis.

ETHER OPERATION.

Jan 24. Four-inch left rectus incision near the median line from the costal margin downward was made. No free fluid or indication of peritonitis was found. The omentum and transverse colon were lifted up, after freeing a small tag from the first operative wound. On investigation, the small intestine was found to have been rotated on its mesentery so that the body of the small intestine was found to lie chiefly in the upper right quadrant of the abdomen with a torsion of the mesentery to the right. The iliocecal valve was found on the left side of the abdomen just below the umbilicus. The pull on the superior vessels of the mesentery was sufficient to cause considerable obstruction to the circulation and tension on the anastomosis which had been made at the previous operation. The intestine at this point was thickened, plum colored, and the sitches, which had so far held without leakage, were beginning to pull through the coats of the intestine and on manipulation of the anastomosis the sutures gave way, leaving a large opening into the lumen of the intestine. The anastomosis was protected with gauze and the small intestine replaced in its normal position. An attempt was made to close the wound in the anastomosis but the stitches tore through the friable intestinal coats. Clamps were then applied, and the anastomosis and about one inch of intestine on either side was resected and an end-to-end anastomosis done, as it was found that the upper end of the jejunum was too short to permit of a lateral. As there was some doubt of the patency of the opening on account of the infolding of a large amount of tissue at the point of anastomosis, the small intestine was opened below the point of suture and a half length forceps passed upward through the anastomosis, which was found to be patent. The opening in the intestinal wall was then closed. The intestine in the region of the union was of normal color, showing that the circulation was no longer impeded. The abdominal wound was then closed in layers, without drainage.

Following operation there was some vomiting for four days, but at no time did the quantity of vomitus equal the total of liquids ingested. Bile no longer appeared in the vomitus. Nutrient enemata were continued at increasing intervals for one week, at which time they were omitted. Soft solid diet was given at the end of a week. House diet with care after the tenth day. There was some superficial suppuration in both wounds. A series of bismuth x-rays were taken three and one-half weeks after the second operation and showed the bismuth remaining in the stomach for an abnormally long time, apparently due to spasm at the pylorus, as there was none in the duodenum after nine and one-half hours. The bismuth was then expelled rapidly from the stomach and met with no obstruction in the small intestine. The patient made a rapid convalescence with steady increase in weight and was discharged to Wellesley convalescent home, Feb. 19.

She remained at Wellesley until April 9, and during this time only vomited once, on March 14, a small amount of thin yellowish fluid. Her weight increased from 27 pounds on March 7 to 35 pounds on April 9.

On Jan. 10, 1914, a report received from the mother of the child states that the patient is in excellent general health, has gained normally in weight and plays actively with other children; no digestive disturbances or trouble with the bowels were mentioned.

The following pathological report was made by Dr. W. F. Whitney, Harvard Medical School.

The specimen consisted of a cyst from the mesentery. It contained a large amount of fluid of a slightly yellowish opalescent color, specific gravity 1017, with spontaneous coagulum of fibrin.

Microscopical examination showed an occasional round cell. The wall was smooth externally, and internally it was trabeculated and smooth. The cyst was divided by an adherent piece of intestine into an hour-glass shaped sac, the two parts communicating by a small opening.

Microscopic examination showed in the wall numerous dilated passages, some with a fibrinous coagulum and others empty. The wall was composed of fibrous tissues, here and there with a little fat and lymphoid tissue interspersed.

The points of especial interest in this case were: First—the rapid increase in size of the cyst to its really enormous proportions; second—the absence of symptoms with the exception of those of pressure upward upon the diaphram; third—the transposition of the small intestine which had apparently been caused by the downward growth of the large inferior lobe of the cyst causing a torsion of the mesentery and rotation of the small intestine pulling the cecum across to the left side of the abdomen.

Mesenteric cysts were first noted at necropsy in the 17th century. The work of Arekion in 1891, Moynihan in 1897 and Dowd in 1900 was of importance in collecting the cases scattered throughout the literature and classifying them.

Moynihan classifies mesenteric cysts as—1. Dermoid, 2. Serous, 3. Chylous, 4. Sanguinous, 5. Hydatid, 6. Cysts of Adjoining Organs, 7. Cystic Malignant disease. He believes in the retention theory of their origin suggested by Virchow and supported by Rokitanski, that the

lympathics are occluded, and dilatation and cyst formations gradually take place. Chylous cysts occur by the occlusion of the chyle vessels or their rupture into pre-existing lymph or serous cyst. The sanguinous cysts arise in a similar manner. In a later paper he gives his opinion that many of these cysts develop from embryonic remains of the Wolffian bodies.

Dowd, on the other hand, believes that with the exception of hydatid and malignant cysts, all the cystic tumors of the mesentery arise from embryonic rests, derived from the Wolffian bodies. The doubt as to their origin is increased by the varied microscopical findings, for in the same specimen different loculi of a multiple cyst may be lined with different sorts of epithelium. A few cysts have been reported with endothelial linings and many, as in this case, present a wall composed simply of fibrous tissue.

The latest classification advanced by Child endeavors to clear up the meaning of the word mesenteric cyst. He contends that a dermoid should be classified as such whether it occurs in the ovary or mesentery or elsewhere. He excludes all forms of cysts from his classification except entero-cystomata which he believes are derived from Meckel's diverticuli and contain smooth muscle fibers in their walls; and cysts arising from the lymphatic system which may be lymphangiomata, simple, cystic, or cavernous, or chylous which are derived from the chyle vessels. It is probable that with the exception of hydatid and malignant cysts, mesenteric cysts, including dermoids, are of congenital origin. The latter arise from ectodermal inclusions. Others arise from embryonic rests of the Wolffian body or primary genital gland; another group are derived from Meckel's diverticuli; while still another class, of which this case is an example, take their origin from a congenital occlusion in the lymphatic system.

It is interesting to note that most of the serous cysts occur in the omentum, the intestinal edge of the mesentery, the mesocolon, and in the retroperitoneal region; while cysts which occur in the mesentery, except at the intestinal border, usually contain chyle.

Mesenteric cysts may be quiescent, to be revealed only at necropsy, or they may give rise to digestive disturbances of an acute or chronic obstructive nature. In their growth they fix the intestine and encroach upon its lumen by appropriating the mesentery to themselves, the bowel becoming flat and ribbon-like where it runs across the surface of the tumor. Pain may be caused by pressure on neighboring viscera or by secondary inflammatory changes.

In the early stage, the tumor lies near the median line in the upper abdomen and is more freely movable than other tumors in this region. Rapid increase in size may be caused by hemorrhages from the vessels of the wall into the cyst; or trauma without hemorrhage may produce a rapid enlargement.

There are four methods of procedure in the treatment of mesenteric cysts—1. Aspiration, which has been practically discarded on account of the large percentage of recurrence; 2. Enucleation, which can only be applied in a limited number of cases owing to the interference with the circulation of the intestine on removal of the cyst; 3. Marsupialization, or drainage of the cyst by stitching its wall to the anterior abdominal parietes; 4. Extirpation of the cyst with resection of the adherent intestine. The latter is the method of choice and though the statement made by Coley three years ago was a mortality of forty per cent., it is undoubtedly lower at the present time. Drainage of the cyst by connecting it with the abdominal wall is useful in cases where a radical removal is impossible or where there is severe infection. Treatment of cysts by this method does not lead to the establishment of permanent fistulae.

XX.

FLAT FOOT IN CHILDREN.

BY ALBERT EHRENFRIED, M.D.

A STUDY of the records of 1000 children under 12 years of age applying consecutively for treatment at the out-patient department of the Children's Hospital, in 1912, showed 440 having some static disability of the feet. These cases could readily be divided into three classes: congenital (18), idiopathic (95), and secondary (327.)

The 18 congenital cases, being the result of mechanical influences acting in utero, may be more properly classified with club foot. They belong to the type which I have described elsewhere[1] as potential calcaneo-valgus. In this condition the foot is not held fixed in the position of deformity, but it hangs flaccid in the normal position, assuming the position of extreme deformity on the application of very slight force, or even under the influence of gravity. This is the most frequent cause of delayed walking in children otherwise normal, which is explained by the fact that in this condition the child loses its ability to balance upon its feet. It is seen soon after birth and later; it is likely to lead to the most aggravated type of flat foot, and it sometimes requires operative treatment.

The secondary cases, which are by far the most numerous (327), include all those in which some primary causal factor is evident: rickets, represented by bow-legs, knock-knees, coxa vara, was present in approximately 200 cases, infantile paralysis in 107 cases, and tuberculosis of the knee, hemiplegia, lead, post-diphtheritic

[1] Ehrenfried: The Occurrence and Etiology of Club-foot, Jour. Amer. Med. Asso., vol. lix, p. 1940.

or spastic paralysis in 20 cases. In many of these the foot symptoms were of minor importance. In a considerable number, however, the diagnosis was not simple and the case was considered one of idiopathic flat foot until continued observation revealed the causal condition. In this inquiry no consideration was given to the type of flat foot, sometimes called traumatic, which arises as the result of wearing a plaster cast for a considerable time, or which occurs in a foot which is bearing the entire weight of the body, on account of disability of the other leg.

The third division, which may be called *idiopathic*, includes all the cases of weak, pronated, or flat feet for which no cause could be assigned, to the number of 95. Of these 52 were boys, of an average age of 6½ years, and 43 were girls, of an average age of 7 years. An examination of the history of these cases showed certain points in common. The condition was evidently due to insufficiency of the muscles supporting the arch of the foot, and was usually part of a general physical debility or lack of muscle tone. Some of the children were well nourished and otherwise in apparently good physical condition. A few were considerably over-weight, but it does not seem to me probable that weight alone, unless it be excessive, can be held responsible in these cases, for in a normal child increase in weight is met by a corresponding increase in power in the muscles of the leg. Bad shoeing must be ruled out in the majority of these cases, as the average child was too young to present marked symptoms from this cause. A considerable number showed evidence of other static disabilities, such as relaxed knees, round shoulders, functional scoliosis, protuberant abdomen, and gastroptosis.

Examination of the histories of 55 cases in which the records were full enough to be of value demonstrated that these 55 children, at an average age of 7 years, had had 147 diseases, including measles 30 times, whooping cough 24 times, chicken pox 11 times, tonsils or adenoid operation 10 times, pneumonia 8 times, scarlet fever, mumps, and glandular abscess each 7 times, bronchitis 5 times, chronic indigestion 4 times, otitis media 4 times, malaria, operation for hernia and appendicitis each 2 times, diphtheria, typhoid, phthisis, meningitis each once, and other conditions 20 times. One is at once struck by the multiplicity of the disorders from which these children suffered, and particularly by the frequency of the occurrence on this list of the infectious diseases, probably much above the average incidence in children at this age. Evidently these conditions are predisposing factors, and the obvious assumption is, that the child, being in poor physical condition as a result of repeated or long continued illness, suffers from a muscular insufficiency which is responsible for the static disability. Poor nutrition, without evidence of any definite illness, also accounts for a certain number of cases.

Attention may profitably be given to the *prophylaxis* of this condition. In the first place this requires regulation of the feeding in infancy and early childhood. Proprietary foods and other substitutes which may predispose to rickets should be carefully avoided in infancy, and later the diet should be well balanced, avoiding an excess of carbohydrates, and supplying plenty of proteids and fresh vegetables or fruit juices. In the second place the spread of infectious diseases and particularly of infantile paralysis, should be controlled so far as possible. This is a matter largely in the hands of boards of health and school and district physicians. Corrective shoeing and proper exercises will go far to prevent disability in children who are delicate, or weakened as the result of illness.

It is probably true that many cases of flat foot in adults have their inception in some condition of the foot which has been overlooked in childhood. *Treatment* should of course be started early, and the outlook for ultimate restoration of function is considerably better than in adult flat foot. Methods depend on the type.

The cases of potential calcaneo-valgus are brought in soon after birth, on account of the evident deformity, or not until 18 to 24 months, on account of delayed walking. Cases seen within the first few weeks respond as a rule very well to treatment by over-correction and retention in plaster of Paris for a few months. The older children are frequently difficult to treat. Mild cases get well with a tilted shoe and instep pad, worn for about two years. Bad cases need a brace, and may have to be operated. The brace I use is just the reverse of the one I have employed in the treatment of equino-varus,—it is a laced shoe which fits the foot, elevated on its inner border, with a jointed external upright, stopped to prevent dorsiflexion, and a T-strap on the inner side.

The treatment of foot disabilities secondary to other conditions, such as rickets and infantile paralysis, is the treatment of the underlying condition. When this has cleared up or is under control, or if the foot symptoms are the chief element, attention should be directed to their relief. In the paralytic foot muscle training is of great benefit, but operation by muscle transplantation or insertion of a silk ligament frequently becomes a necessity.

The cases of idiopathic flat foot as a rule are of a mild or moderate degree, and respond well to treatment, if carried out for a sufficient length of time. Metal plates should be avoided. Massage of the lower legs, exercises carried out persistently under supervision, the leather instep pad and the tilted shoe are usually adequate. Severe cases may require temporarily the brace which I have already described. The rigid feet and the exostoses of the adult are

not seen. Acute cases need rest in bed or fixation in plaster of Paris.

CONCLUSIONS.

First, the diagnosis of weak, pronated or flat foot should not be made inconsiderately. In 327 of the 440 cases the foot symptoms were secondary to some other condition, which required treatment. Continued observation in many apparently simple cases showed mild rickets or unsuspected infantile paralysis as a cause, and less frequently such conditions as tuberculosis of the knee, hemiplegia, or lead, post-diphtheritic or spastic paralysis.

Second, 18 of the primary cases were congenital. These, the result of mechanical influences prior to birth, are more properly classified with club foot; they belong to the type to which I have given the name of potential calcaneo-valgus.

Third, a study of the other primary cases, 95 in number, shows evidence of muscular insufficiency resulting from physical debility as the leading factor in causation. This debility, as shown by the records, is frequently the sequel of an infectious disease, and is particularly apparent when the child has been the victim of a series of infections in close succession. Other static disabilities, such as relaxed knees, functional scoliosis, and gastroptosis are likely to be present.

Fourth, the secondary cases, which were in the majority, were the result of rickets or of rhachitic deformities in approximately 200 cases, of infantile paralysis in 107, and of other conditions in approximately 20 cases. In many of these the foot disability was a minor incident.

Fifth, prophylaxis of foot disabilities consists in combating the two important causes therefor, rickets and the infectious diseases of childhood. Both of these should yield to hygiene. Measures to lessen substitute nursing of infants by means of proprietary foods or improper milk mixtures, and to control the spread of contagious diseases through schools, which, at the present time, are probably the chief agents in the dissemination of infections among children, will result in an important diminution in the incidence of these conditions.

Sixth, treatment is usually effective.

XXI.

PYELITIS IN INFANCY AND CHILDHOOD.

BY EDWIN T. WYMAN, M.D.

PYELITIS is not a rare disease in infancy and childhood, but it is a disease which may be easily overlooked without an examination of the urine in cases of obscure fever.

In the majority of cases there is nothing whatever in the symptomatology to call attention to the urinary tract, the symptoms being merely an elevation of temperature and those common to all febrile disturbances in infancy, such as restlessness, fretfulness and signs of indefinite discomfort. Anorexia is the rule and vomiting is not unusual. The temperature is relapsing in type, often reaching 105°F.

In infants, the physical examination is usually negative, except that pallor is characteristically present. There may be tenderness in the lower abdomen, and in some instances the kidney is palpable, more often on the right than on the left. The spleen may be palpable at the onset of the disease.

In the vast majority of cases the diagnosis can only be made by examination of the urine. Consequently the urine should be examined in all diseased conditions in infancy with indefinite symptoms, especially if febrile, and no physical examination should be considered complete or diagnosis satisfactory in obscure conditions in infancy unless the urine has been examined. Not infrequently these cases of pyelitis are treated for other diseases and as spontaneous cure occurs in many of the acute cases, the presence of pyelitis is never recognized.

Pyelitis in infancy is often associated with more or less intestinal indigestion, and the infant is treated for this condition when the indigestion is really secondary to the pyelitis.

Sometimes the patients object to being handled; are very irritable, and have tenderness of the extremities resembling that in scorbutus. Other cases may have pain and tenderness in the abdomen and have even been operated on for appendicitis. The irregular temperature may suggest malaria or typhoid fever. Some cases may have marked symptoms resembling those in meningitis.

The following are two typical cases in which the diagnosis was overlooked:

CASE 1. Frank N. Age, 3 weeks. The family history was negative. He was a full term baby, and the delivery was normal. He weiged 10 pounds at birth, and at the age of 2 weeks he weighed 11 pounds. He was breast fed, and was a normal, healthy baby up to his present illness. One week before he was seen, he did not take his feedings as well as usual. The following day his temperature was normal in the morning and 100.2° F. in the evening. The next day he did not seem quite as well and his afternoon temperature was 104° F. He was thought to have indigestion and was given two teaspoonfuls of castor oil and an enema, with good result. During the next three days his condition grew worse. He was very irritable and his pallor increased. His temperature was irregular, 103° F. to 104° F. in the evening, and 101° F. to 102° F. in the morning. The temperature had never been normal since the onset. The bowels were constipated, the movements greenish, and contained a considerable number of small soft curds. There had been no vomiting and no convulsions. It had been noticed that the urine was "white like milk

and water." The breast milk was discontinued the day before he was seen and whey was given, with no improvement in symptoms.

Physical Examination. He was a well developed and nourished infant. The skin was clear but pale, and the muscles were flabby. The anterior fontanelle was 4 x 5 cm. and level. The ear drums were normal. The throat, mouth, heart, lungs, and abdomen showed nothing abnormal. The liver was palpable 2 cm. below the costal margin. The spleen and kidneys were not palpable. The extremities were normal.

Case 2. Mildred T. Age, 13 months. The family history was negative. She was born at full term, after an instrumental delivery. Her birth weight was 8 pounds. She had been breast fed up to the time she was seen and had always been a well, normal baby.

Ten days before she was seen she was taken suddenly sick with fever and chills, and she had a slight cough. The temperature had never been normal since the onset and had been irregular, sometimes reaching 105° F. She had grown more fretful and irritable every day and had lost considerable weight and a good deal of color. Her bowels had been regular and the movements were normal.

It had been noticed that the micturition had been frequent and painful. For two days before she was seen she vomited nearly every feeding, and for 24 hours before she was seen the vomiting seemed to be of a projectile type. The head had been retracted, and there had been rigor and slight twitching of the arms and legs. There had been no convulsions. She was thought to have meningitis.

Physical Examination. She was a well-developed and nourished, very sick looking little infant. She was very pale and flabby. She had evidently lost considerable weight. She was conscious, but very irritable. The head was held slightly retracted, but it could be easily flexed.

The anterior fontanelle was 2 x 3 cm. and level. The pupils were equal and reacted to light. The ears, mouth and throat were normal. The lips and tongue were dry and parched. There were eight teeth. There was no enlargement of the peripheral lymph nodes. The heart, lungs, abdomen and extremities were normal. There was no spasm or paralysis and no neck sign. The knee jerks were present and equal. There was no Kernig or contralateral reflex.

The urine in both these cases was acid and contained slight trace of albumen. The sediment showed many pus cells, free and in clumps, and many motile bacteria. The symptoms and fever in both these cases disappeared within two weeks, with the alkaline treatment, and the urine was nearly free from pus at the end of three weeks.

In a series of 65 cases of pyelitis in infants and children at The Children's Hospital, Boston, 54% were in infants under two years, and 46% were in children beyond two years. Of these cases 63% of the infants were females and 90% of the children were females. Vomiting was noted in 39% of the cases; painful micturition in 36%; and frequency of micturition in 40%. Chills were noted in 15%; and abdominal pain in 16% of the cases. The average leucocyte count in the uncomplicated cases was 19,000; the lowest leucocyte count was 8,000 in a chronic case; and the highest leucocyte count was 62,000 in a very acute case. The temperature varied from normal, in the chronic cases, to 105.5°F. in the acute cases. There was anorexia, anemia, fretfulness and loss of weight in all the cases.

Pyelitis occurred as a complication with other diseases in these 65 cases as follows:—Otitis media, eight times; pneumonia, seven times; infectious diarrhea, four times; bronchitis, twice; intestinal indigestion, twice; measles, twice; typhoid fever, twice; and tubercular peritonitis once.

Some of these cases yielded readily to treatment, the urine clearing up in two weeks; while other cases were more resistant and were only improved at the end of six weeks.

The organisms responsible for the infection in pyelitis, in a large proportion of the cases are the colon bacilli, although staphylococci, streptococci, and pneumococci are sometimes found.

The urine in pyelitis is pale, uniformly cloudy or turbid; the turbidity is due in part to the bacteriuria, and in part to the presence of large numbers of pus cells; chiefly to the latter. The reaction is almost invariably acid, not infrequently highly so, and there is a slight trace of albumen.

Microscopically the sediment is composed of many pus cells, free and in clumps, many motile bacteria and usually a few caudate, small round and squamous cells.

There are three possible modes of infection.

(1) *The Ascending Theory*: The chief arguments in favor of an ascending infection from the urethra are the much greater frequency of this condition in females, most common in diaper age, and the short wide urethra which makes infection easy when the external genitals are soiled by feces.

(2) *The Hematogenous Theory*: That the bacteria are borne to the kidney by the blood stream.

(3) *The Transparietal Theory:* That the bacteria are transmitted directly from the intestines to the kidney.

Morse writes[1] that in the majority of cases in girls, the infection is through the urethra, while this route is very unusual in boys, and then only when there is some evident lesion, such as phimosis causing stasis, severe balanitis, or an infected wound from circumcision. In most cases in boys and in a fair proportion of those in girls, the infection is probably transparietal, while in both sexes it is occasionally hematogenous[1].

PROGNOSIS.

There is practically no danger as to life. With treatment recovery usually occurs in a few weeks, but the condition may persist with intermissions for many months. In some instances

the urine contains bacteria and at times pus for years, although there is no constitutional disturbance. There is very little danger of the process extending to the kidney, or that it will involve anything more than the superficial layers of the pelvis and bladder.

The pathology shows simply a catarrhal condition of the bladder and pelvis of the kidney. Very few autopsies have been made, because the condition is rarely fatal.

TREATMENT.

The alkaline method of treatment will often suffice to cure the disease. Potassium citrate is given well diluted with water, grains X, three times a day for an infant one year old. If the dose is not sufficient to make the urine highly alkaline, larger doses must be given. Another line of treatment is to change the reaction of the urine every three or four days by first making the urine alkaline with potassium citrate, then acid, with sodium benzoate or benzoic acid in doses of grains iii, three times a day for an infant one year old. This changes the reaction of the media and discourages the growth of the bacteria.

If the urine does not clear up under this treatment, hexamethylenamin in doses of from one to three grains should be used. If the urine is alkaline, it should be made acid with sodium benzoate or benzoic acid. The urine should be tested for formaldehyde by Berman's[2] test and the hexamethlyenamin increased until the urine shows the presence of formaldehyde; the urine being carefully watched for irritation of the kidney.

If the trouble still continues, large doses of hexamethylenamin, aided by autogenous vaccines may be used as Freeman[3] advises, gradually increasing the hexamethylenamin to gr. 25 daily for an infant of six months and grains 25-45 a day for an infant of nine to 12 months. Vaccine should be given every three or four days, beginning with a dose of 25,000,000 and increasing to 160,000,000. The large doses of hexamethylenamin should not be continued for more than a week at a time, and then after several days without any treatment, or with alkaline treatment, the hexamethylenamin should be started again at the same maximum dose given before[4]. The urine should be carefully watched for irritation of the kidney.

Local treatment of the bladder is of comparatively no value, because the infection is not localized in the bladder but involves the whole urinary tract.

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[3] Freeman: Am. Jour. Dis. of Children. 1913, vol. vi, no. 2, p. 117.
[4] Freeman: Am. Jour. Dis. of Children, 1913, vol. vi, no. 2, p. 117.

XXII.

TWO CASES OF CIRRHOSIS OF THE LIVER IN CHILDHOOD.

BY THEODORE ELY, M.D.

While cirrhosis of the liver in children is no longer regarded as an exceedingly rare condition, it is by no means a common one, and that type of cirrhosis which is due to alcohol may still be said to be a most unusual affliction in childhood.

The first case of this kind of which we have a record was reported by Wilks in 1863 before the Pathological Society of London (Pathological Society of London 1863, Vol. XIV.) In succeeding years occasional cases were reported from England, America and the Continent. Among a total of sixty-three reported cases of hepatic cirrhosis of various types R. Palmer Howard in 1887 found ten cases whose cause could be traced to the abuse of alcohol. (R. Palmer Howard in *American Journal of Medical Science*, Oct., 1887) *Haushalter and Richon in 1899 collected twenty cases from the literature. Of these only fourteen came to autopsy and the alcoholic cause of at least one seems very doubtful. In 1907 Bolton of London (Cirrhosis of the Liver in Children—*Clinical Journal*, London, 1907-08) reports that at the time seventy-four cases had been described in the literaturue. This would scarcely seem a sufficient number to agree with his further statements, that hepatic cirrhosis of some type is found in .2% of all autopsies on children under 12 years of age in England, and that England is noted for its frequency in alcoholic cirrhosis, or with the statistics of various authorities quoted by Rapin (These de Nancy, 1899, Contribution a L'Etude de la Cirrhoe Alcolique) among whom Hebrad traced the origin of seven out of fifty-one cases of hepatic cirrhosis and D'Epine and Picot seventeen out of one hundred to the abuse of alcohol, or with the opinion of Morse (BOSTON MEDICAL AND SURGICAL JOURNAL, Sept. 11, 1902) that alcohol is responsible for from ten to twenty-five per cent. of all cases in children. In a brief but fairly comprehensive review of the English literature since 1907 I have found only two cases reported in this country and but one of these was proved by autopsy to be of the alcoholic type. (Blakely, BOSTON MEDICAL AND SURGICAL JOURNAL, 1910) (Davis—Cirrhoin a Boy of two years—*West Virginia Medical Journal* 1912—12.)

The disease seems to be more common in boys than in girls. The youngest case on record I believe is about sixteen months of age. The average seems to be between eight and eleven years.

The symptoms differ somewhat from those found in the adult. Jaundice is a fairly common symptom in children. Epistaxis is as fre-

* Revue Mensuelle des Maladies de L'Enfance, Mar., 1899.

quent and diarrhoea and vomiting more so than in the adult. Haematamesis is less frequent in children but several cases where this was the immediate cause of death have been recorded. Enlargement of the spleen is practically constant in children as is the hypertrophy of the liver in the earlier stages of the disease. The enlargements of the liver is not only more constant in the early stages in children but often persists until death. Dilatation of the superficial abdominal veins is perhaps less common and slight elevation of temperature more common. Ascites and oedema are about as common but seem to appear relatively later in the course of the disease.

The nervous symptoms in children are confined to marked drowsiness and sometimes loss of speech. Peripheral neuritis, delirium tremens, etc., are practically never seen.

The course of the disease is much shorter than in adults. Complications aside from the embarrassed heart action seem rare and the children usually die of the progressive asthenia.

The pathological changes found at autopsy due to the disease *per se* are practically identical with those found in the adult cases except for the constant splenic enlargement.

The two instances of hepatic cirrhosis in children which I have the privilege of reporting to you were observed in a pair of twins, four years of age, first seen in the medical out-patient department of the Children's Hospital on Oct. 6, 1913, and subsequently observed in the medical wards there.

Case History, G. O.

Family History. Father and Mother living and (always have been well) well. Two sisters living and well. Another pair of twins, boys, at 2½ years, living and well. First child died from cholera infantum. Second pregnancy resulted in miscarriage at 3½ months. Fourth pregnancy which followed the birth of first living child also resulted in miscarriage at 3½ months. Neither father nor mother has had sore throat or rash. Both deny specific infection or constant use of alcohol.

Past History. Born instrumentally at full term. Has always been about 4 lbs. heavier than the other twin. His mother says that the infant was black for 24 hours after delivery but then regained normal color and had no paralysis. He was breast fed for 14 months. Had no acute infection until after onset of present illness. Ever since the breast feeding was stopped the mother has been in the habit of giving both children small amounts of brandy at frequent intervals. She started giving three drops every hour, but as the children have grown the dose has been increased until sometimes they have been given a half teacupful at a time. The mother estimates that the children have each had a quart of brandy on an average of at least 16 drops a day since fourteen months old. The father, who confesses to a "moderate" use of alcohol, tells of having found both boys drinking whiskey by the half-cupful when one morning he came unexpectedly into the dining room, where he had been entertaining a friend on the previous evening and had carelessly left a partly filled quart bottle of whiskey on the table. The mother states that the brandy which was first given in small doses because the infants "seemed puny and had no appetite" was later given in larger doses when the children had a toothache or a pain.

Present Illness. In January 1913 patient developed painful swelling on penis. One week later mother noticed yellowish tinge in sclera. Child developed a voracious appetite with constant desire to drink water. Skin gradually turned yellow and has been more or less so ever since. There was no vomiting at the onset. About two months after onset mother noticed the dark smoky red color of the urine and that it left a red stain on clothes. The stools since onset have averaged from 4 to 5 a day and have generally been clay colored and very foul smelling. For a while under medical treatment they became darker. In July last had a severe attack of measles, and for about a month the jaundiced color of skin disappeared, but the urine and stools retained the characteristics noted. For the past two months the abdomen has been growing larger and the rest of the body thinner and the skin has itched. In that period the gums and buccal mucosa have grown tender and bleed easily. Two weeks ago the mother found the patient's pillow and bed clothes covered with blood. No blood has ever been noticed in urine or stools. Two months ago swelling of fingers at the distal joints was noticed. He is now drowsy and sleeps all the time; no headache, digestion seems good, and he never vomits. Since attack of measles has lost considerable weight. Has never had any convulsions, fever, cough or sore throat. For a month before admission was kept on—fat and sugar—restricted diet without improvement. Child looks and acts drowsy.

Physical Examination. Patient is poorly nourished with little subcutaneous fat. Skin is dry and lax and uniformly jaundiced, rough and in spots excoriated from scratching. Petechial spots on arms and legs. Eyes show marked yellow sclera with reddened conjunctivae. Buccal and nasal mucosa reddened and congested and beneath the buccal and palatal mucosa small punctate hemorrhages are visible. The lips are excoriated and cracked. There is a general glandular enlargement. Heart: Boundaries on percussion are 2½ cm. from the right and 7 cm. from the left of the M. S. L. No abnormality of sounds. Lungs negative. Abdomen distended, convex. There is slight shifting dullness but no distinct fluid wave could be demonstrated. The superficial veins are prominent and somewhat distended. Liver dullness begins above at lower edge of 5th rib in nipple line on the right. The lower edge is distinctly palpable 5 cm. below the free costal border in the nipple line and 5 cm. below the tip of the xyphoid in the median line. The edge is smooth and not very tender. Spleen is much enlarged, the lower pole being palpable 7 cm. below the costal border and 4 cm. from the median line. No other abnormal masses palpable. Extremities show no edema. There is marked clubbing of the distal joints of the toes and fingers. Genitals show no edema. Urine was red, smoky, acid and con-

tained bile but no albumin or sugar. Stools were grayish yellow in color, contained bile, no blood, pus or mucous. Blood count showed nothing remarkable in numbers or character of white or red cells. The hemoglobin was 70% by Tallquist. Wassermann's complement fixation test and Von Pirquet skin test were both negative.

Ten days later on Oct. 16th the physical condition showed little change. Jaundice persisted. The boundaries of the heart, liver and spleen showed no appreciable change by percussion and palpation. The urine and stools both contained bile.

At the request of the parents he was discharged home from the hospital on Nov. 4th, four weeks after entrance. The jaundice was much less marked, as was yellowing of the sclera. The petechial spots on the arms and legs were fewer and the child was scratching much less. The area of cardiac dullness was unchanged. The spleen was felt in the same situation as before. The lower edge of the liver was palpable 3¼ cm. from the costal border in the right nipple line. The urine still contained bile but the reaction was less marked. During the child's stay in the hospital the pulse and respiratory rate ranged within normal limits. His evening temperature during twenty-nine days of observation reached 100 on eight evenings and his maximum was 101.6 reached on one evening. For the rest of the time the daily variations were within normal limits.

The patient was last seen alive on Dec. 9th. After leaving the hospital his condition showed little change until December 6th. The urine remained of reddish color. The stools were described as having grown more normal in character and no blood had been seen in them. Dec. 6th he began to vomit and retained practically no food after this. He coughed up and vomited blood at frequent intervals. The mother noticed that his breathing became more rapid and difficult. He complained of pain in the upper right quadrant of the abdomen which was somewhat relieved by rubbing. On examination his respirations were grunting and labored, rate was about 52 per min. The pulse was too rapid for count, poor volume and tension. The physical signs in lungs were those of consolidation of the right lung extending from the base upward in back to the upper angle of the scapula and in front to the third interspace. In the lower left axilla the breath sounds were much diminished and moist rales were numerous throughout. The left border of the heart was 8 cm. to the left and the right 4½ cm. to the right of the M. S. L. Because of the lung consolidation on the right it was impossible to make out the character of the cardio-hepatic angle or the upper limit of hepatic dullness. The heart action was very rapid but regular and no abnormality of sounds aside from their generally weak character was detected. The abdomen was enormously distended and showed the usual signs of free fluid. Superficial veins were very prominent on both abdomen and thorax. The liver was tender and its lower edge was indefinitely felt 2 cm. below the costal border in the nipple line. The lower pole of the spleen was distinctly felt 5½ cm. below the free costal border in the anterior axillary line. There was marked edema of the genitalia and slight edema of the extremities. Emaciation was more marked and the condition of the mouth worse than on leaving the hospital. The patient died at two o'clock the following morning.

CASE HISTORY, C. O.

Family History. The same as the other child.

Past History. Was delivered normally at full term. Except for having always been the smaller of the twins his past history is not important.

Present History. Began two weeks after the brother's. The first symptom noticed in January, 1913, was the yellowish discoloration of the sclera. The story of his present illness was exactly identical with his brother's except that his attack of measles last July was less severe than his brother's and jaundice has never disappeared. The character of stools and urine, jaundiced and itching skin, painful, easily bleeding gums and buccal mucosa, epistaxis and clubbing of fingers have all been the same as his brother's, and the last four symptoms have appeared at about the same time as the brother's. His abdomen has never grown so large as the brother's. He has never had convulsions or fever, cough or sore throat except with the measles.

Physical Examination. Much the same in its important points as the brother's. Sclera of the eyes is markedly yellow. The buccal mucosa shows punctate hemorrhages underneath, most numerous over the palate. Tonsils are large and fibrous. There is general glandular enlargement. The lungs give no abnormal physical signs. Cardiac dullness extends from 3 cm. to the right to 6 cm. to the left of the M. S. L. The sounds are somewhat irregular in rate and rhythm, the second pulmonic is much accentuated, no murmurs or friction sounds detected. The abdomen is distended, convex, and above the level of the thorax. The upper limit of hepatic dullness is in the 5th inter-space. The lower edge of the liver is smooth, firm, and easily palpable 5 cm. below the costal border in the nipple line and 4 cm. below the xyphoid. The lower pole of the spleen is palpable 7½ cm. below the costal border and 7 cm. from the median line. No free abdominal fluid detected. The superficial abdominal veins are prominent. The genitals show a moderate hydrocele of the right testicle and slight phimosis. The clubbing of the fingers and toes is marked, no edema of extremities, the reflexes are all normal.

The urine was slightly acid and contained bile but no albumin or sugar.

Stools yellow, formed and smooth, contained bile and no blood or pus.

The blood examination showed 5,500,000 red cells and 6,500 white cells per cubic mil. Of the white cells 55% were polynuclears and 45% of the mononuclear type. Hemoglobin was 70% by Tallquist. The Von Pirquet skin reaction was negative. No Wassermann test was made, as it was deemed unnecessary in both cases.

Fragility of the red blood corpuscles in both cases was tested by the Senior House Officer, Dr. A. E. Myers, with the assistance of Dr. Karsner, using hypotonic salt solution in the percentages running from .2% to .8% in steps .05%. In the case of G. O. hemolysis began at 45%, was incomplete at .2%. In case of C. O. hemolysis began at .4%, was incomplete at .2%. In the normal control hemolysis began at 45%, was complete at .25%. This would indicate that the resistance of the corpuscles of both patients is slightly increased. This is shown more markedly in the

point of complete hemolysis which occurred at less than .2%, as compared with complete hymolysis which in the normal control occurred at .25%. The value of the experiment lies in the fact that it served to indicate a decreased fragility of the red blood corpuscles in our two patients, whereas in familial jaundice the fragility is said to be increased.

On Oct. 22nd, sixteen days after admission, the general condition showed little change. The jaundice and condition of the mouth were the same, the boundaries of the heart, liver and spleen showed no change. No free abdominal fluid could be detected. The urine contained bile in slightly decreased amount.

He left the hospital on Nov. 4th., four weeks after admission, with condition unchanged except for a decrease in the depth of the jaundice.

During his stay of twenty-nine days in the hospital his evening temperature reached 100 on only seven evenings, and only twice attained the maximum of 101° Farh. During the rest of the time the daily temperature variations were within normal limits. The pulse rate and respirations varied only within normal limits.

While in the hospital both boys on questioning would express a most enthusiastic desire for brandy.

He was last seen on December 9th, approximately two months after coming into the hospital. Since his discharge the urine is said to have become fairly normal in color. The stools have remained hard and white. Recently he has grown more apathetic and drowsy, and if undisturbed sleeps at least half of the day. On examination pulse and respiratory rate were normal. Jaundice and the yellowish discoloration of the sclera were somewhat less marked. The heart area was within normal limits. At the apex a slight systolic murmur faintly transmitted to the anterior axilla was heard, second pulmonic sound much accentuated, action slightly irregular. The abdomen was only moderately distended and no free abdominal fluid was detected. The superficial abdominal veins were fairly prominent, the liver edge was distinctly palpable 7 cm. below the costal margin in the nipple line and 7½ cm. below the xyphoid. The tip of the spleen was felt on a line with the umbilicus and 7½ cm. to the left of it. The condition of buccal and nasal mucosa was practically the same as on discharge.

For the performance of the autopsy on the first case and the subsequent pathological and histological work I am indebted to Dr. Howard T. Karsner of the Pathological department, Harvard Medical School. The autopsy was performed thirty-six hours post-mortem. In brief the anatomical diagnosis is as follows: Acute fibrinous pericarditis with effusion. Chronic interstitial myocarditis, Passive congestion of lungs and conglomerate tuberculosis of left lung. Miliary tuberculosis of right lung. Lobar pneumonia of right lung. Atrophic cirrhosis of liver with regeneration. Miliary tuberculosis of liver. Chronic passive congestion of spleen with follicular hyperplasia and miliary tuberculosis. Passive congestion of intestines. Ascites. Slight arteriosclerosis. Miliary tuberculosis of left peri-bronchial, superior mediastinal, mesenteric, retroperitoneal and subhepatic lymph nodes.

The more detailed report of the gross pathological findings is as follows:

Body. That of a poorly nourished, white male child showing moderate jaundice, no rigor, marked liver mortis and green discoloration over the distended belly. The lower extremities and the forearms show numerous punctate hemorrhages.

Primary Incision. Shows a thin panniculous adiposis and dark red musculature, no bleeding.

Peritoneal Cavity. Contains an unmeasured but large amount of slightly cloudy yellowish-brown, limpid fluid. Peritoneum smooth and glistening throughout. Omentum is very much congested and the organs are all in normal position, spleen reaching about 4 cm. below the costal margin, the liver not being visible.

Thoracic Cavity. Shows a markedly distended pericardium filled with slightly cloudy blood-stained fluid containing flakes of fibrin. Thymus not visible.

Pleural Cavity. Left pleural cavity is smooth and glistening throughout. Right cavity throughout its entirety shows easily broken up fibrinous adhesions and the sac contains a slight excess of slightly cloudy blood-stained limpid fluid containing flakes of fibrin.

Lungs. Left lung is of moderate volume, crepitant throughout except for a very small area in the apex anteriorly and of generally dark red color. Organ cuts with normal resistance and shows a dark red, bleeding, soft moist cut surface. The point of consolidation in the apex anteriorly is found to be near a yellow bulging caseous mass measuring 1 cm. in diameter, fairly well encapsulated, but showing in the immediate neighborhood several small slightly projecting gray tubercles. The pulmonary vessels are normal. Peribronchial lymph nodes are enlarged, adherent to one another uniformly caseous and continuing into the superior mediastinal lymph nodes. Similar involvement is found around the bifurcation of the trachea and the left side of the trachea above the bifurcation. Bronchi show slight congestion, but otherwise normal. The right lung is voluminous and solid, weighs 320 grams in contrast to a weight of 140 grams for the opposite lung. The organ is covered by thin loosely attached, blood-stained fibrinous exudate. The organ is completely consolidated, cuts with normal resistance and above throughout all three lobes dark red, firm, finely granular cut surface which on scraping appears to be dry. Throughout this cut surface, however, a relatively small number of minute, non-projecting, vaguely defined, gray and yellowish-gray masses are found which have the gross appearance of miliary tubercles. They are not closely associated, however, never confluent and in a single section do not number more than 10 to a lobe. The pulmonary vessels of this side are normal, the bronchi are the same as on the other side and the lymph nodes are somewhat enlarged, soft and pink and do not show any caseation.

Pericardium. As noted above contains a great excess of fluid.

Heart. Of about normal size and weighs 120 grams. The epicardium is covered throughout by a blood-stained, loosely adherent, fairly thick fibrinous exudate, thicker over the left ventricle anteriorly than elsewhere and giving rise to a typical shaggy appearance. The hemoglobin staining, however, is extreme. The muscle cuts with normal resistance and shows a retracted, firm, reddish-gray cut surface in which there appears to be an increase of connective tissues. The mitral,

aortic, pulmonic and tricuspid valves show nothing abnormal. The endocardium throughout is thin and transparent and the columnae carnae and papillary muscles normally rotund.

Liver. Weighs 400 grams, measures 16.5 x 9.5 x 3.5 cm. The organ is extremely firm and shows a slightly thickened, smooth capsule with numerous areas in which the sub-capsular veins are considerably distended. The edges are rounded. In several places there are points of nodular bulging immediately under the capsule. These nodules are spherical yellow-white, very well defined and bulge in the cut surface. Their diameters range between one and three millimetres and they have more the appearance of tubercles than of liver substance. Organ cuts with leathery resistance and shows a non-bulging, firm, gray cut surface throughout. Projecting into the cut surface and not clearly visible from the outer surface except in the Spigelian lobe are areas fairly definitely defined, ranging from 2 to 4 mm. in transverse diameter, yellow in color with slightly depressed red centres, generally soft consistence and much more numerous in the right lobe than in the left lobe. In fact, the left lobe is almost a solid mass of this dense leathery, gray, very nearly homogeneous connective tissue. The gall bladder and bile ducts are normal.

In the small intestines at about the middle of the ileum is a small, slightly depressed irregular ulcer generally circular, measuring about 2 mm. in transverse diameter with slightly undermined edges and yellow nodular masses in the elevated margin. A similar ulcer is found at the region of the splenic flexure in the large intestine.

Spleen. Weighs 140 grams, measures 14 x 7.5 x 2.5 cm. It is large, shows a thickened, opaque capsule and is distinctly softened. It cuts with slightly increased resistance and shows a slightly bulging cut surface in which both follicles and trabeculae are distinctly more prominent than normal. In addition there is found in the cut surface a number of slightly projecting well defined, aphorical, yellow nodules which grossly appear to be tubercles.

Adrenals. Show post-mortem congestion.

Kidneys. Weigh together 220 grams. They appear to be slightly enlarged and are extremely soft, capsule strips with ease, leaving a smooth, marked congested outer surface. Organs cut with slightly diminished resistance and show a bulging, soft, dark red, slightly bleeding cut surface. The cortex is thickened and bulging; pyramids sharply defined and purple. Peripelvic fat normal. Ureters and bladder normal.

Lymph-Nodes. Mesenteric, retro-peritoneal and sub-hepatic lymph nodes all show enlargement and are soft. Several of them in transverse section show a bulging cut surface in which are several nodules projecting above the cut surface, fairly well defined, yellow and of the gross character of miliary or small conglomerate tubercles.

Aorta. Shows throughout its length similar fine streaks of thickening and yellowing of the intima to that described in the ascending part.

"On microscopic examination, the right lobe of the liver shows very marked thickening of the capsule of Glisson with marked proliferation of bile ducts and moderate infiltration focally of lymphocytes. The parenchyma shows cloudy swelling, fatty degeneration and central necrosis. Bile pigmentation is found peripherally in many of the lobules. The sections from the left lobe fail to show any remaining parenchymatous tissue; but the central vein, much fibrosed, can be made out and the capsule of Glisson can be distinguished. In the position of the parenchyma, however, there is a marked overgrowth of connective tissue and proliferation of bile ducts. These ducts show low cuboidal epithelial, occasionally show clubbed extremities and in a few cases contain bile, but no transformation into liver cells can be seen. The diagnosis is a cicatricial atrophic cirrhosis, following some acute general destructive lesion. Miliary tuberculosis is also present."

Neither the pathological nor histological findings in this case lend much support to the diagnosis of an alcoholic cirrhosis in the pathologists' opinion. On the other hand, they do not completely discredit this diagnosis and the pathologist can suggest no other more probable cause than alcohol for the changes found in the liver. The histological picture suggests most strongly an acute destructive process such as is seen in acute yellow atrophy or acute atrophy due to phosphorus poisoning. The history, symptomatology, especially the absence of acute gastroenteric symptoms, the comparatively long course all tend to discredit this diagnosis. Furthermore, both children apparently were attacked within a period of three weeks by a disease that in both has presented one at a time symptoms compatible with the diagnosis of an alcoholic cirrhosis, and in both was presumably due to the same cause. It seems most improbable that an acute atrophic process of the idiopathic type or due to poisoning or even to intestinal toxemia could originate in both children at almost the same time and then present in both the same symptomatology and protracted course. The other more common causes of hepatic cirrhosis are fairly conclusively ruled out, I think, as follows:—

1. Congenital lues, by the personal history, negative Wassermann test, the symptomatology, and so far as I now know by the pathological and histological findings.

2. Cardio tubercular cirrhosis, of the type described by Hutinel (quoted by Morse, *ibid*), by the absence of any definite signs or symptoms of cardiac or pericardial origin, by the failure of the Roentgen ray to indicate any pericarditis or mediastinitis, and by the fact that the pericarditis found at autopsy was evidently an acute process of recent origin, and there were no old adhesions, and also no valvular lesions found in the heart.

3. Cirrhosis due to acute infections seems fairly satisfactorily ruled out by the negative history of any acute infection except measles and the fact that the symptoms of liver impairment had been present at least for six months before the attack of measles.

In conclusion from all the evidence now at hand and with full appreciation of the rarity of the condition I am inclined to believe that in both children the initial process was a cirrhosis

of the liver due to abuse of alcohol. I am not sufficiently familiar with the pathological changes in the livers of children dying from acute liver degeneration as a sequel to one of the acute infections to advance the idea as anything more than an hypothesis, but it would seem at least possible that in the one case which has come to autopsy the pathological picture might be accounted for by an initial alcoholic cirrhosis complicated by an acute destructive process as a sequel of the measles infection, and later followed by attempts at regeneration of the liver tissue. The whole picture of course being further complicated by an acute general miliary tuberculosis and terminated by the attack of lobar pneumonia.

For the privilege of reporting both cases I am indebted to Dr. Thomas Morgan Rotch, visiting physician at the Children's Hospital.

XXIII.

The Report of a Case of Multiple Bone Tuberculosis Atypical in its Distribution and X-Ray Appearances.

By Henry J. Fitz Simmons, M.D.

Believing that the report of cases which are unusual and which have been studied by the best methods of the present day may lead to a wider dissemination of knowledge and subsequent more accurate diagnosis I report the following case.

This patient J. R., a boy of sixteen months, came to the Out Patient clinic of The Boston Children's Hospital May 3rd, 1913. The child was born in Boston of healthy parents who are still well and strong and show no signs of organic disease. He was breast fed five months and has always had good care.

Four months before entrance the mother noticed a lump in the child's abdomen which has gradually grown smaller. She brought the child to the clinic for diagnosis and treatment of lumps upon the head.

On entrance the child appeared well developed and well nourished. The skin upon his face was clean and of good color. His hair and nails appeared to be normal. His head was of normal size. Both pupils were equal and reacted to light and distance. The right external auditory meatus contained a foul smelling discharge. The left ear appeared normal. Over the right parietal portion of the skull were three tumor masses, each about ¾ inch in diameter. Two appeared hard and definitely connected with the bone, the other was fluctuant, neither was reddened nor was there any increase in the surface temperature. The posterior cervical and posterior auricular glands were somewhat enlarged but not tender. At the outer canthus of each eye there was a small



Fig. 1.—Showing tumor mass beneath eyes and tumors over the right parietal region of the skull.

fluctuant reddened area about the size of a green pea. Along the descending ramus and angle of the lower jaw on the left side was a nodular thickening which was neither tender nor reddened. The child's mouth was practically negative. No increase in the adenoid tissue was discernible. Teeth were in good condition and the mucous membranes of good color.

The examination of the chest revealed good development with no signs of rickets. No nodulation could be made out along the course of the ribs. The heart percussed within normal limits and its action was regular as to rate and rhythm. The sounds were of good quality and no murmurs were heard. The lungs showed no areas of dullness, no rales nor adventitious sounds.

The abdomen was soft, easily palpated and no masses nor tenderness was found. The liver and spleen percussed within normal limits but the edge of the liver could not be felt.

There was no enlargement of the iliac or inguinal lymph glands.

On the surface of the right thigh are a few small areas that are covered with dark crusts and are surrounded with an area of induration. The right femoral region appeared normal save for these skin lesions and a general thickness about the lower end. This thickness is above and outside the knee joint.

In the region of the upper third of the right tibia on its anterior aspect one could feel an area of thickening about 2 inches long by 1 inch wide.

Beneath the external malleolus and extending towards the cuboid and over the region of the astragalus is a large, tense area of swelling.

The right upper arm appears normal save for some thickness at the lower end of the humerus.

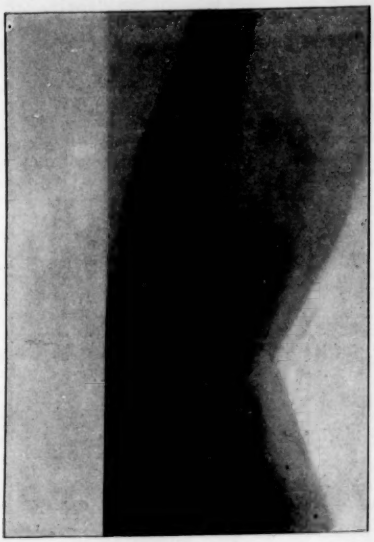


FIG. 3.—Showing lesion in right tibia before operation.



FIG. 6.—Showing lesions about right elbow.

This thickness does not interfere with any movement of the elbow joint. Over the right radial epiphysis is a swelling which is smooth and not attached to the skin, but which is slightly tender. This tumor is apparently connected with the bone beneath. The right hand shows at the end of the fourth metacarpal a pustular lesion covered with a dry scab. The lesion is surrounded with an area of induration ¼ inch in thickness

The left upper leg appeared normal except that two inches below the trochanter is a small indurated dark colored lesion which appeared very superficial. This lesion is about ¼ inch in diameter. Just below the knee and on its outer aspect is a similar skin lesion which appeared to be fluctuant.

The left lower leg presented nothing abnormal except a few scattered skin lesions. Over the first metatarsal of the left foot on the inner side was an area of swelling somewhat reddened but free from fluctuation. This swelling extended from the toes to the ankle joint. The left humeral region presented nothing abnormal. On the extensor surface of the upper third of the left ulnar was a tumor mass which appeared to be connected with the bone but did not involve the skin. This mass was not tender, reddened nor fluctuant.

The left hand presented a fusiform enlargement of the first two phalangeals of the first finger, upon which are dark crusts which were dry and showed no evidence of recent discharge. There was motion in all joints of this hand.

The Wassermann reaction taken at this time was negative. The Luetin test was negative. The Von Pirquet reaction was strongly positive. His blood examination showed leucocytosis 15,600; polyneuclear forms 60%; lymphocytes 40%. There was at this time no myelocytosis present. His urine examination was negative. No Bence-Jones bodies could be recovered from his urine.

Oct. 3, 1913. While the child was under ether a section containing skin and cavity of the two superficial lesions in the left thigh was removed. These were placed in sterile tubes and sent to the pathologist for diagnosis. Both of the cavities contained thick yellowish pus similar to that removed from tubercular cavities. In addition a typical pyogenic membrane was found and easily removed from each. The child made a good recovery and five days after the operation the areas on this leg were discharging moderately and healing in gradually. Twelve days after the operation these lesions had entirely healed without induration or secondary infection.

Oct. 21, 1913. Under ether the small fluctuant mass over the right parietal region was entered but the content of the cavity was too thick to allow aspiration. The needle was withdrawn and sufficient sero-purulent material squeezed out to afford material for culture. A three inch incision was made over the crest of the right tibia immediately below the tibial tubercle. Dissection was carried down without bleeding to the periosteum which was incised over the swelling observed in the bone. A piece of cortex one inch long and one quarter inch wide was removed with a chisel. On the removal of this piece of cortex there escaped some yellow thick purulent material from what appeared to be a well defined abscess cavity. This cavity was lined with a definite membrane which was easily removed. The cavity was wiped out with gauze and the wound closed loosely with interrupted sutures with a small wet wick left protruding between two sutures. The child made a perfectly good recovery from the operation and the wick which had been inserted was removed

after twenty-four hours. The wound at that time was clean and free from induration.

Since the operation the open areas on the left thigh were dressed and were healed solidly in two weeks. The operative wound on the tibia healed by first intention. The child seemed to be doing well except that the swelling which had been noticed on the lower lid and at the outer canthus of each eye increased considerably in size until at this date (Nov. 10th) each was as large as a cherry. The skin over these masses was very much thickened and reddened. Fluctuation was very easily obtained. The three tumor masses over the right parietal region of the skull were still present. The tumor mass which was aspirated is now reddened and showed signs of having become secondarily infected.

Nov. 11, 1913. A small incision about ¼ inch long was made in the dependent portion of each tumor mass located in the cellular tissues under the eyelids. The contents of these abscesses were gently expressed and the opening closed with collodion and cotton. The abscess located over the external malleolus of the right foot was incised, its contents expressed and the wound closed tightly.

Nov. 18, 1913. The right arm was given the usual iodine preparation and under ether an incision was made over the cavity as outlined by the x-ray, two inches below the elbow joint. Considerable induration about the bone at this point was demonstrated. The cortex was then chiselled through and the cavity opened. From this cavity a large amount of yellow caseous material was removed. This cavity was lined with a definite membrane and was about 1 inch in length by one half inch in width. It was swabbed out with iodine and the wound was closed with interrupted sutures without drainage. One of the tumor masses in the right parietal region was opened with the removal of a small amount of yellow purulent material and a small bone sequestrum. The lining wall of the cavity was definite and easily removable. This wound was closed tightly with the exception of a small rubber drain which was left in for twenty-four hours.

Dec. 10th, 1913. The general condition of the child to-day is much worse than it was one month ago, notwithstanding the fact that the child has had the benefit of out-door treatment at the Convalescent Home at Wellesley. The two areas on the parietal region, which were operated upon still show some nodulation. The one that was operated on as a clean wound has completely closed, but the one which was aspirated is still discharging and seems to have become a sinus. The tumors under the lids of both eyes have disappeared but in their place are two ulcerative surfaces ¼ inch in diameter from which exudes purulent material. The area which was incised on the left ulnar is still tender and shows signs of thickness to the same degree that it did previous to the operation. The skin lesions which were found in different parts of the body have now disappeared. The operative wound of the old lesion in the upper portion of the tibia has healed solidly, but there is evidence of bone proliferation beneath. On the lateral aspect of the right foot there is a discharging sinus. This was the situation of the old abscess which was incised. The lower extremity of the right radius particularly on the inner side seems to be somewhat larger than it was two weeks ago and is distinctly tender on palpation. The fusiform swelling of the index finger of the left hand is still present but not discharging.



FIG. 4.—Showing lesion in right tibia, seven months after operation.

A comparison of the x-ray plates taken at an interval of 7 months is interesting in view of the pathological report to follow.

Figure 1 shows lesions on the skull and the tumor mass beneath eyes previous to the operation.

Figure 3 shows the lesion in the right tibia before operation. Figure 4 shows the same lesion four months after the operation.

Figure 6 shows the lesions about the right elbow. The lesion in the ulnar has since been operated upon.

The child on December 10th had a positive Von Pirquet skin reaction. The leucocyte count was 7,800 of which 58% were polyneuclear forms, 42% were lymphocytes and the blood showed no myelocytes. The urine examination was negative. No Bence-Jones bodies were obtained.

The bacteriologists have been unable to grow the material sent to them from the numerous operations, on the usual laboratory culture material.

The pathologist reports as follows: The specimen from the ulnar shows typical tubercles, necrotic central areas surrounded by tubercles and necrotic bone trabeculæ; there is here as in the tibia evidence of osteal proliferation. The specimen from the tibia consists of a fragment of cortical bone having adherent to its inner surface a mass of greyish tissue 4 mil. in diameter. A section through the fragment of bone and adherent mass shows the latter to contain morthologically typical tubercles, solitary and multiple surrounding areas of necrosis. There is an erosion of the cortical bone in the region adjacent to the tubercular tissue. The periosteal surface of the bone shows distinct osteal

proliferation with the formation of new trabeculae. The specimen from the skull marked septic shows necrotic debris only, the specimen from the skull marked clean shows necrotic debris with peripherally poorly formed tubercles.

I wish to acknowledge my indebtedness to Dr. Halsey B. Loder of the department of Surgical pathology of the Harvard Medical School, for the pathological work done on this case.

XXIV.

THE SIGNIFICANCE OF THE VON PIRQUET REACTION IN SURGICAL TUBERCULOSIS IN CHILDREN.*

BY L. BRUCE ROBERTSON, M.D.

Of the various tuberculin reactions, that described by Von Pirquet in 1907, has, in the hands of the majority of observers, proved to be the safest and least disturbing. Of the other reactions, namely the subcutaneous, the ophthalmic and the per-cutaneous or Moro reaction, suffice it to say that the sometimes unpleasant sequelae of the first, the local disturbance of the second, and the variability of the third are enough to recommend the simplicity and ease of the cutaneous test. The explanation[1] of the local reaction in the Von Pirquet test is still theoretical, but it is believed to be due to a hypersensitivity of the infected organism displayed on reinfection, accounted for by the presence of antibodies or bacteriolysins which have been produced as a result of the primary infection, the mechanism of the reaction consisting in the breaking up of the introduced virus and the liberation of a toxic substance in the skin, with its inflammatory effect at the point of inoculation. Occasionally when the test is negative at the first trial, a second attempt a short time later will result in a positive reaction. It is doubtful if an individual can be sensitized by the tuberculin absorbed at the first inoculation to such an extent that he will react, solely on that account, to the second inoculation.[2] The explanation may lie in the natural progress of the disease or in the action of the tuberculin on some latent focus irritating it to such a degree that antibodies are formed which give rise to the reaction at the second inoculation.

The method of application of the Von Pirquet test pursued at the Children's Hospital, Boston, is as follows: The skin over the anterior surface of the forearm is cleansed with 70% alcohol and allowed to dry. Two very small drops of the undiluted old tuberculin ("O. T.") are placed upon the prepared area about four inches apart, a circular control scarification extending into but not through the skin is now made midway between the drops by means of the ordinary watchmaker's screwdriver, and similar scarifications are made through the drops of tuberculin. The arm is held either by patient or nurse until dry, a matter of a few minutes.

The reaction due to trauma is seen in practically every case and is of no importance. It consists of a wheal about each scarification followed by a zone of hyperemia, which disappears within a few hours. The true reaction consists essentially of a hyperemic indurated zone about the scarification and appears as a rule within the first eighteen hours, becoming most pronounced during the second 24 hours and fading gradually in the next three to six days, leaving a desquamating, sometimes pigmented, area. In the very intense reactions, vesiculations may occasionally occur, the induration is more pronounced and the color a deep reddish purple. The periphery of such an area may be jagged with reddish streaks along the course of the superficial lymphatics leading from the area of reaction. One of this nature subsides slowly, and it may be two or three weeks before the desquamation and pigmentation have disappeared.

The object of the present investigation was to determine the reliability of the Von Pirquet reaction in surgical tuberculosis, particularly that of bones and joints. The statements made apply rather to the more severe types of bone and joint infection as the less severe types are treated in the out-patient department without being admitted to the wards.

The material consists of some 350 cases on which the Von Pirquet reaction was tried, collected from the records in the last 4 years. The children were all under 12 years of age.

CASES ADMITTED TO HOSPITAL WITH DIAGNOSIS OF TUBERCULOUS DISEASE OF THE SPINE

Number of cases, 71. Ages from 14 months to 10 years. Number of positive Von Pirquet reactions, 65. Cases in which the reaction was negative, 6.

CASE 1. G. A. Age, 18 months. Duration of symptoms, 3 months. Patient had history of pneumonia following whooping cough 6 months before, and signs of pulmonary involvement were still present. The lower lumbar vertebrae were affected and a large lumbar abscess present was opened. Child showed a severe grade of toxemia and died in hospital after developing an empyema.

CASE 2. E. W., 7 years of age. Duration of symptoms, 3 months. A second Von Pirquet test 5 days after the first one resulted in a positive reaction.

CASE 3. E. S., 9 years of age. Admitted with a question of tuberculous disease of the lumbar vertebrae. The x-rays were negative and the whole condition entirely cleared up in 10 days, probably a sprain of spine.

* From the Orthopedic Department, Children's Hospital, Boston

Case 4. E. F. Age, 3½ years. Admitted with question of tuberculous disease of spine and knee. This was probably not a tuberculous condition as the condition had entirely cleared up in 6 months.

Case 5. D. St. H. Age, 8½ years. T. B. spine and knee, with discharging sinus; duration, 5 years. Von Pirquet negative.

Case 6. P. N. Age, 3½ years. Tuberculous disease of spine. Double psoas abscess. Duration of symptoms according to history, 1 month. Von Pirquet negative.

One case with positive reaction later proved to be an acute exacerbation of a chronic cervical adenitis.

CASES ADMITTED TO THE HOSPITAL WITH DIAGNOSIS OF TUBERCULOUS HIP DISEASE.

Number of cases, 74, ages from 10 months to 11 2-3 years. Number of positive reactions, 67. Cases in which the reaction was negative, 7.

Case 1. M. M. Age, 2 years. Von Pirquet tried 6 months later and positive reaction obtained.

Case 2. G. H. Age, 2½ years. Von Pirquet test negative in May, 1910. The patient had had hip symptoms for 8 months, chronic bronchitis since measles two years before, and general condition was poor. Several months later she developed pulmonary tuberculosis. A second Von Pirquet test was tried (Dec. 4, 1913), and found positive.

Case 3. W. C. Age, 7 years. Clinical history of 1 year duration. Von Pirquet reaction negative. The case was under observation only two weeks and has not reported to the out-patient department since, so that diagnosis is still unproven. X-ray showed an anatomically incipient process in hip.

Case 4. A. C. Age, 4 years. Tuberculosis of hip with abscess formation. Duration of symptoms, 10 months. Nothing to account for negative reaction. Attempt made to follow up case, but child had been taken to New Hampshire.

Case 5. E. G. Age, 2 years. Admitted with question of T. B. hip. Duration of symptoms, 1 month. Leucocytes, 22,000. Four days after admission abscess in right iliac glands was opened and drained. Patient was discharged from hospital 1 month later with abscess almost healed and hip symptoms having subsided to a considerable degree. Diagnosis suppurative iliac adenitis.

Case 6. J. C. Age, 2 years. Admitted with question of tuberculosis of hip. Duration of symptoms, 3 weeks. The x-ray showed a destructive process in the great trochanter. Seven months later the child returned to the out-patient department wearing no apparatus and condition apparently cured.

Case 7. J. K., 2½ years of age. Diagnosis, tuberculosis of hip with pathological dislocation. The patient showed a very severe grade of toxemia, and pathological examination of tissue obtained at operation on the hip showed the presence of tuberculosis. Three successive Von Pirquet tests were negative.

CASES ADMITTED TO HOSPITAL WITH DIAGNOSIS OF TUBERCULOUS DISEASE OF THE KNEE.

Number of cases, 21. Ages, 2-8 years. Number of positive reactions, 20. The only negative reaction was in a boy 6 years of age. Duration of symptoms, 2 years. Von Pirquet test was tried on four different occasions and found negative.

CASES ADMITTED TO THE HOSPITAL WITH DIAGNOSIS OF TUBERCULOUS DISEASE OF THE ANKLE.

Number of cases, 14. Age, 2-5 years. Number of positive reactions, 14.

CASES ADMITTED TO THE HOSPITAL WITH DIAGNOSIS OF BONE OR JOINT TUBERCULOSIS ELSEWHERE THAN MENTIONED ABOVE.

Number of cases, 7. Number of positive Von Pirquet reactions, 7. Shoulder, 1; radius, 1; wrist, 1; dactylitis, 2; osteomyelitis of tibia, 1 (proven by pathological examination of bone obtained at operation); os calcis, 1. Totalling those cases in which a definite diagnosis of *bone or joint tuberculosis* could be made, we find 3.2 per cent. of negative reactions in 182 cases.

Of other tuberculous conditions for which patients were admitted there were 20 cases, in all of which the Von Pirquet reaction was positive. This list comprises: Tuberculous cervical adenitis, 14 cases; tuberculous peritonitis, 2 cases; tuberculous kidney, 1 case; tuberculous abscess of thigh, 1 (diagnosis proven by pathological examination); tuberculosis of hernial sac, 1 case; multiple tuberculous lesions, 1 case.

Of cases admitted with a diagnosis other than that of tuberculosis there were: Rickets, 20 cases. The Von Pirquet reaction was negative in 18 cases. Positive reactions.

Case 1. Patient aged 3½ years with knock knees. Showed no clinical evidence of tuberculosis.

Case 2. Patient aged 3 years with knock knees. Showed healed cervical adenitis with scar in neck.

Infantile paralysis, 18 cases. Von Pirquet reaction negative in 16 cases. Positive reactions.

Case 1. Patient aged 11½ years, has slight enlargement of cervical lymph nodes. Patient's father died of pulmonary tuberculosis.

Case 2. Patient, aged 5¾ years, showed palpable lymph nodes in anterior triangles of neck.

Osteomyelitis, 21 cases. Von Pirquet reaction negative in 16 cases. Positive reactions.

CASE 1. Age, 10 years. No clinical evidence of tuberculosis.

CASE 2. Age, 8 years. No clinical evidence of tuberculosis, but a family history of tuberculosis was present.

CASE 3. Age, 3¼ years. Von Pirquet reaction was negative in the first trial and positive 1 year later when patient was found to have developed cervical adenitis.

CASE 4. Age, 3¾ years. Patient shows old tuberculous glands of neck.

CASE 5. Age, 10 years. Patient had enlarged palpable cervical glands. The father died of pulmonary tuberculosis.

Congenital deformities, 28 cases. Von Pirquet reaction negative in 26 cases. Positive cases.

CASE 1. Age, 5 years. Patient showed no clinical evidence of tuberculosis.

CASE 2. Age, 2½ years. Patient had tuberculous glands of the neck.

Arthritis (non-tuberculous), 5 cases. The Von Pirquet reaction was negative in 4 cases.

In the single positive case, a child aged 6½ years, with multiple arthritis following otitis media, a chronic otitis media was still present which was not definitely non-tuberculous.

Synovitis of hip, 8 cases; of knee, 1 case. Number of negative reactions, 8.

In the 1 positive case, a child 3 years of age, there was no clinical evidence of tuberculosis, but the father and one sister have pulmonary tuberculosis and the mother died of it.

Epiphysitis of femur, 4 cases. Von Pirquet reaction negative in one case. Of the 3 cases in which positive reactions were obtained none showed any definite evidence of tuberculosis, although one showed enlarged tonsils and another had a family history of tuberculosis.

Flattened head of femur,[3] 2 cases, both of which gave positive Von Pirquet reactions. In neither case was there other clinical evidence of tuberculosis. One case gave a family history of tuberculosis.

Of other conditions, including acute suppurative lymphadenitis, pyogenic abscesses, sarcoma, traumatic bow-leg, renal calculus, hematoma of the abdominal wall, rupture of the liver, septic ankle, progressive muscular atrophy empyema, syphilitic periostitis, cirrhosis of liver, infectious diarrhea, scoliosis, cyst of neck, cyst of femur, ovarian cyst, Volkmann's ischaemic contracture, burns of body, hernia, hydrocele, appendicitis and pericolic adhesions, there were 43 cases, of which 36 showed negative Von Pirquet reactions. Of the cases in which a positive reaction was obtained, one had enlarged submerged tonsils, another had enlarged anterior cervical glands, while the remaining five showed no clinical evidence nor family history of tuberculosis.

To sum up, in all cases having clinical evidence of surgical tuberculosis, either in bone or soft tissues, 2.9% showed negative Von Pirquet reactions. In those cases not showing definite clinical evidence of tuberculosis, although some showed enlarged anterior cervical glands and others gave a family history of tuberculosis, 14% showed positive cutaneous reactions.

In the apparently non-tuberculous cases, the reaction is more frequently negative in the younger children, as seen from the following:

0-4 years, 48 cases. Positive reactions in 10%.

4-8 years, 61 cases. Positive reactions in 14.5%.

8-12 years, 40 cases. Positive reactions in 17.5%.

The reaction may be regarded as specific, and the fact that it is positive in a moderately small percentage of clinically non-tuberculous children does not outweigh its value as a diagnostic test. From the above figures it must be concluded that the Von Pirquet reaction is fairly reliable in children under 12 years of age, but that it has less significance where the patient shows enlargement of the anterior cervical lymph nodes or gives a family history of tuberculosis. The frequency of positive reactions in cases giving a family history of tuberculosis is well shown by Brown[4] in his statistics from the Babies' Hospital, New York. The tuberculous lesion may not necessarily be active, but up to the present time there has been no recognizable difference between the local reactions occurring in active and those in presumably latent cases.[5] It is stated that the reaction may be absent where severe toxemia is present,[6] and this fact would seem to be borne out by the two negative reactions occurring in two of the above-mentioned cases, one of tuberculous hip and one of tuberculous spine.

There is a much greater proportion of positive reactions in apparently non-tuberculous cases than of negative reactions in those clinically tuberculous.

The Von Pirquet reaction is said to be absent in measles during the incubation period and for several days after the rash has appeared. Evidence to this effect has been given by Von Pirquet and later by Moltschanoff.[7] The latter gives 100% of negative reactions in measles and 85% negative reactions in scarlet fever.

There has been an attempt made recently to differentiate between active and latent tuberculosis by noting the leucocyte count both before and after the Von Pirquet reaction, and Chiaravalloti[8] has shown in a series of cases of active pulmonary tuberculosis that there is a

definite increase in the total and polynuclear count after the cutaneous test. After investigating some 20 cases consisting of bone and joint tuberculosis and tuberculous peritonitis in the Children's Hospital, with this point in view, we found such a lack of uniformity in results that it was only justifiable to conclude that this test of the so-called "general reaction" to the Von Pirquet test is, at least in its present state, not applicable to cases of surgical tuberculosis

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Book Reviews.

State Board Questions and Answers. By R. Max Goepp, M.D. Third edition. Thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1913.

The second edition of this work was reviewed in the issue of the Journal for July 27, 1911 (Vol. clxv, p. 141). In this third edition considerable new material has been added, particularly with reference to serology, chemotherapy, syphilis, tropical disease, and cardiac physiology. Considerable old and superfluous material has also been eliminated, particularly in the field of materia medica; so that the total increase in size of the book is only two pages. Like its predecessors, it should be useful to teachers "as a repository of typical questions, a guide of instruction," and an evidence of the present demands of American examining boards upon candidates for registration in medicine.

Ulcer of the Stomach. By Charles Bolton, M.D., D.Sc. (Lond.), F.R.C.P. (Lond.). New York: Longmans, Green and Company. London: Edward Arnold. 1913.

The author has collected much clinical and pathological data concerning gastric ulcer. He tells us, in his preface, that he purposely omits any discussion of duodenal ulcer. The book, which is nearly 400 pages long, impresses one as of more value as a book of reference than a monograph on the subject of gastric ulcer. In an attempt to make the work complete a considerable amount of irrelevant material is introduced, so that the continunity is lost and with it interest lags. Most of the material is stereotype and very little is either new or personal. The book abounds with references and no statements are made that are not backed up by citation of authorities. In this regard, at least, the book is admirable.

Diseases of the Heart. By James Mackenzie, M.D., F.R.C.P. Third edition. London: Oxford University Press. 1913.

This excellent work is so well known that the third edition requires no extended review. A comparison with the last edition published in 1910 shows what definite progress has been made in the precise diagnosis of diseases of the heart, more particularly in the field in which Mackenzie has been a pioneer, namely, cardiac irregularity. The book throughout is clear, and admirably arranged. Epecially lucid and convincing are the hundred pages devoted to the various forms of cardiac irregularity. An appendix with ninety-two case reports is of great assistance in the illustration of the points that the author desires to make. The book is well printed on good paper and concludes with an admirable index.

Mind and Health. With an Examination of Some Systems of Divine Healing. By Edward E. Weaver Ph.D., sometime Fellow in Clark University, with an introduction by G. Stanley Hall, PhD., LL.D., president of Clark University. New York: The Macmillan Company. 1913.

The author aims in this book of 500 pages, including a bibliography and index, to present in popular form, the present status of the psychotherapeutic movement. An introductory historical statement is followed by a discussion of the theories of mind and the principles of psychotherapy, as propounded by both the older and more recent writers on the subject. The bias of the author is clearly shown by the fact that a very large portion of the book is concerned with the various religious systems of healing, all of which are discussed with an open mind and with liberal quotation from original sources. The work lacks interest to physicians because of the over-emphasis placed on the religious aspects of the matter. Whatever the future may bring forth, for the present it is desirable to study facts without prejudice, and without emotional appeal, and this the author fails to accomplish. In spite of this defect and also of unnecessary verbosity, the book is written with sincerity and should certainly serve as a guide to the more popular religious aspects of psychotherapy. It does not adequately cover the more searching psychological studies of recent years, upon which the whole subject must ultimately rest.

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THE CHILDREN'S HOSPITAL.

THIS issue of the JOURNAL is published as a *Festschrift* in honor of the forty-fifth anniversary of the founding of the Children's Hospital. The completion of this period of its life coincides with the opening and occupation of its new group of hospital buildings near the Harvard Medical School. The good fortune of this transition from an old to a modern and more favorable environment should prove not only an increased opportunity for service, but a fresh stimulus to continuance of activity and progress in medical study.

The history of the Children's Hospital has been associated with names of distinction in medicine and in surgery. Its development was intimately a part of the life-work of the late Dr. Thomas Morgan Rotch, who contributed the second article in this series, and whose untimely death on the eve of its publication is doubly lamentable in that he could not see the completion of his cherished projects. The reputation of the Children's Hospital, however, has not been made in pediatrics alone. Surgically, distinction for the hospital has been won by the department of orthopedics. The history of this surgical progress is amply reviewed in the fifth article of this series.

The remaining papers, by other members of the hospital staff, present a number of special details in the work of the Children's Hospital, and give an idea of the range and variety of its activities. Like all good hospitals, it has always been devoted not solely to the relief of the sick, but to the pursuit of medical research and the furtherance of medical education. In its new and more intimate local association with the Harvard Medical School, the opportunities and possibilities of this aspect of its work should be still further increased, and in every respect the hospital should share in the impetus given to each constituent part of a great medical centre. Its well-wishers look forward from the completion of this epoch in its history to another of even brighter success and more distinguished achievement.

ADVANCE IN HOSPITAL ADMINISTRATION.

IT is fitting on this occasion of the opening of the new buildings of the Children's Hospital, to call attention to progress in administration which indicates a marked change in attitude toward the teaching of medicine, and which will place the facilities of this hospital more completely at the service of the best in medical education than has hitherto been done. It is a long road from the conditions indicated in the first report, covering the time from the opening on July 19, to the end of the year, December 28, 1869, to those brought out in the last available report, for the year 1912. The original house in Rutland Street was opened for thirty patients. The hospital on Longwood Avenue will accommodate one hundred and fifty, and is capable of almost indefinite expansion. There is in addition a convalescent home. The budget for the first six months, including property, was a little over twenty-five thousand dollars; that for 1912 was over a million and a half, exclusive of the convalescent home.

During this time the contributions to medical knowledge, as well as the relief of suffering, have been commensurate with the opportunities given, and as the hospital enters its new quarters, the managers, with the hearty support and upon the recommendation of the staff, give new evidence of their interest in medical progress.

Realizing that the closer the union between a hospital and a good teaching institution, the better the interests of the patient are served, the

board of managers, several years ago, entered into an agreement with the Corporation of Harvard College, by the terms of which vacancies in staff positions should be filled by nominations from that corporation, dependent upon confirmation by the board of managers of the hospital. This agreement contemplated only members of the visiting staff as usually understood. Recently, however, the board of managers has taken a further step, which is unique, so far as we know. At a special meeting held on February 23, 1914, acting upon the suggestion of the staff and of the executive committee, it voted to create the positions of visiting pathologist, visiting bacteriologist, visiting chemist, visiting pharmacologist, and visiting physiologist, and in accordance with the agreement, the Corporation of Harvard College was requested to make nominations to fill them. This has been done and these visiting positions are to be filled by members of the laboratory staff of the Harvard Medical School, as follows: Assistant Prof. Howard T. Karsner to be Visiting Pathologist, Prof. H. C. Ernst to be Visiting Bacteriologist, Prof. Otto Folin to be Visiting Chemist, Prof. Reid Hunt to be Visiting Pharmacologist, Prof. W. B. Cannon to be Visiting Physiologist.

The purpose of the managers of the hospital in creating these positions is that these five men shall make regular visits to the wards and shall supervise the work of the hospital in their special fields. They are to be regular members of the visiting staff and are to have full privileges in the wards with due regard to the welfare of the patients and the necessary routine work of the hospital. They will not, of course, be troubled with the need of voting on such routine matters as the appointment of house officers, but in other ways the intention is that they shall have the full privileges of staff membership.

The difference between these and existing conditions is the difference between what is indicated by the term "consultant" and the term "visiting," and that this is great any one familiar with hospital management will not hesitate to acknowledge. The action is notable as recognizing the importance of the closest possible relationship between hospital and laboratory. Such a step would not have been possible when the hospital was opened, for there were no laboratories. It is commonly not thought of now, but the slightest reflection and knowledge of medical history will show how far reaching and important it may prove to be.

THE ROBERT BENT BRIGHAM HOSPITAL.

On Sunday, March 15, the buildings of the new Robert Bent Brigham Hospital, on Parker Hill, Roxbury, were informally opened for inspection by a company of over 2000 invited guests. The completion of these buildings and the beginning of their active service mark the addition of another modern and fully equipped hospital to the large and rapidly growing group of medical institutions in Boston centering about the Harvard Medical School.

The Robert Bent Brigham Hospital will be devoted to the care of chronic diseases, surgical and medical. Its staff is composed of well-known and able older and younger physicians and surgeons of Boston. Architecturally the buildings, of brick and limestone, form a fine structure in the modified Greek style, and from their commanding location not only are well seen but enjoy an almost ideally hygienic situation. The details of their equipment are of the most elaborate and approved modern type. The hospital begins its work under the most favoring conditions, and should contribute worthily to the service of the community and to its medical distinction.

MEDICAL NOTES.

Honors for Dr. Gorgas.—On Monday of last week, March 23, Dr. William C. Gorgas, Surgeon-General of the United States Army, was entertained at dinner by the medical profession of London, in recognition of his work in the sanitation of Panama. Among those present were Sir Rickman Godlee, president of the Royal College of Surgeons; Sir Francis H. Champneys, president of the Royal College of Medicine; Sir Thomas Barlow, president of the Royal College of Physicians; Sir Francis Ferrier, president of the Medical Society; Sir Havelock Charles, president of the Society of Tropical Medicine and Hygiene; Sir William Osler, Regius professor of medicine at Oxford; Sir Clifford Allbutt, Regius professor of medicine at Cambridge; Surgeon-General Arthur W. May, medical director general, Royal Navy; Sir William Lancelot Gubbins, director general, Army Medical Service.

On March 24, Dr. Gorgas received the honorary degree of Sc.D. at Oxford.

SIZE OF FRENCH FAMILIES.—In connection with the declining French birth-rate, a comparative study has recently been made of the number of children in French families. Of 11,000,000 families, 2,000,000 were found to be without children, 3,000,000 had one child each, 2,500,000 had two, and 1,500,000 three children each. There were four children in 1,000,000 families; five in 500,000; six or over in the remainder. There were 34 families with 17 children each and 45 with 18 each.

TYPHOID IN THE MERCHANT MARINE.—Dr. Rupert Blue, Surgeon-General of the United States Public Health Service, has recently issued an open letter to managers and masters of lake and river vessels in this country, calling their attention to the high prevalence of typhoid infection among American seamen aboard such craft. During the year ended June 30, 1913, there were admitted to the United States marine hospitals 392 cases of typhoid fever among members of the merchant marine, besides many others treated in public hospitals and at home. During this period there were no cases in the United States Navy. Dr. Blue therefore urges wider adoption of antityphoid vaccination.

BUBONIC PLAGUE IN HAVANA.—Three new cases of bubonic plague were reported at Havana on March 26. One of the patients has already died.

HOSPITAL BEQUESTS.—The will of the late Mrs. James N. Gamble, which was filed for probate on March 25, at Cincinnati, Ohio, contains a bequest to Christ Hospital in that city.

BOSTON AND NEW ENGLAND.

SCARLET FEVER AT YALE.—Report from New Haven, Conn., states that on March 20 there were eight cases of scarlet fever among students at Yale College. Every step has been taken to prevent further spread of the infection.

REGISTRATION OF DENTISTS.—Of 84 candidates who took the examinations on March 4, 5, and 6 before the Massachusetts State Board of Registration in Dentistry, only 28 were passed.

MASSACHUSETTS HOMEOPATHIC HOSPITAL.—The recently published forty-fourth annual report of the Massachusetts Homeopathic Hospital records the work of that institution for the calendar year 1913. During this period 6,508 patients were treated in the main hospital, 12,411 in the out-patient department, 1,040 in the maternity department, 811 in the children's ward, and 455 in the contagious department. From the training-school 27 nurses were graduated. There is urgent need of a new ward for children, and of $100,000 for the erection of a maternity building.

MONSON STATE HOSPITAL.—The recently published report of the Monson State Hospital at Palmer, Mass., records the work of that institution for the year ended Nov. 30, 1913. The total number of patients treated during this period was 1163, of whom 604 were men and 559 women. There were 65 deaths. Considerable progress has been made on the construction of a new building for 130 male patients.

NEW ENGLAND BAPTIST HOSPITAL.—The recently published twentieth annual report of the New England Baptist Hospital records the work of that institution for the calendar year 1913. During this period 722 patients were cared for, of whom 50 were obstetric cases. A total of 383 surgical operations was performed. From the training school a class of eight nurses graduated. The hospital has a legacy to provide and equip a new and much larger building. At present the question of selecting a site is still under consideration.

HOSPITAL BEQUESTS.—The will of the late Caroline Crowell, of Haverhill, Mass., disposing of property whose value is estimated at $56,700, gives one-fourth of the residuary estate to the Hale Hospital of that city.

The will of the late Charles R. Lawrence, of Brookline, Mass., which was recently filed in the Norfolk probate court at Dedham, Mass., establishes a trust fund, of which, upon the death of the principal beneficiaries, one-fourth each is to be given to the Children's Hospital and the Massachusetts General Hospital, Boston. The Massachusetts General Hospital is also made residuary legatee.

The will of the late Sarah E. Pratt, which was recently filed in the Suffolk probate court, contains bequests of $1000 each to the Perkins Institution for the Blind and the Massachusetts Charitable Eye and Ear Infirmary.

The will of the late Joseph C. Storey, of South Boston, who died on March 15, contains

bequests of $10,000 to the Massachusetts General Hospital and $5,000 to the Perkins Institution for the Blind. The residue of the estate constitutes a trust fund which, upon the death of the testator's widow, is to revert in equal shares to these two institutions.

The will of the late Martha B. Webb, of Brookline, Mass., which was allowed in the Norfolk probate court on March 25 at Dedham, Mass., contains a residuary bequest to the Beverly (Mass.) Hospital.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending March 24, 1914: Diphtheria, 49, of which 2 were non-residents; scarlatina, 130, of which 24 were non-residents; typhoid fever, 6, of which 1 was non-resident; measles, 43, of which 1 was non-resident; smallpox, 1; tuberculosis, 44, of which 4 were non-residents.

The death-rate of the reported deaths for the week was 18.75.

NEW YORK.

American Society for the Control of Cancer.—The first of a series of meetings under the auspices of the American Society for the Control of Cancer was held at the Women's Cosmopolitan Club on March 24. The speakers were Frederick L. Hoffman, LL.D., who has collected many statistics on the subject of cancer, and Prof. James Ewing of Cornell University Medical College. The latter took issue with Mr. Hoffman on statements made by him that cancer is essentially a disease of civilization and that radium is of no value in its treatment. Dr. Ewing expressed the opinion that many local malignant growths could be cured by radium, if treated sufficiently early. The limit of the penetrating power of its rays, he said, appears to be one and one-half or two inches, and the correct dosage of this agent has not yet been definitely determined.

Work of Montefiore Home.—The twenty-ninth annual report of the Montefiore Home and Hospital for Chronic Invalids shows that during the past year 1,083 inmates were cared for, of whom 472 were still under treatment. All the patients except 43 were treated free. The new buildings in the Bronx, to which the home has lately been removed, were erected at a cost of $1,965,000, and, with its country sanatorium for tuberculosis at Bedford Hills, the institution is now able to care for 700 persons suffering from chronic and incurable disease.

Report of the Loomis Sanatorium.—The recently published seventeenth annual report of the Loomis Sanatorium for the Treatment of Tuberculosis records the work of that institution for the year ended Oct. 31, 1913. During this period 372 patients were admitted. In treatment, special attention was devoted to tuberculin, artificial pneumothorax, and the employment of graduated exercise for the production of controlled auto-inoculation. An urgent appeal is made for funds to assist in reducing the sanatorium's debt of $147,000.

Legalization of Chiropractic.—Report from Albany states that on March 25 the State Senate passed bills extending to chiropractic and naturopathy the same legal recognition now given to osteopathy.

Current Literature

Medical Record.

March 14, 1914.

1. Bushnell, G. E. *The Extension of Tuberculosis in the Immune Lung.*
2. Hays, H. *Exact Diagnosis by Accurate Instruments in the Treatment of Catarrhal Conditions of the Eustachian Tubes and Ears.*
3. Beer, E. *Adenoma of the Prostate.*
4. Marshall, V. F. *A Report of Ten Cases of Acute Perforating Gastric and Duodenal Ulcer.*
5. Harris, C. M. *Some Important Factors in the Conservation of Hearing.*
6. Tocplitz, M. *Five Hundred Examinations of the Nose and Throat in an Institution for Delinquent Boys.*

New York Medical Journal.

March 14, 1914.

1. *Erdmann, J. F. *Diverticulitis of the Colon.*
2. Rosenberger, R. C. *Experimental Study of Tubercle Bacilli Submerged in Water.*
3. Stern, H., and Sachs, L. B. *Gastric Flatulence and Disturbances of the Heart.*
4. Gilbride, J. J. *Dyspepsia Due to Chronic Appendicitis.*
5. Bush, A. D. *Tobacco Smoking and Mental Efficiency.*
6. Knox, H. A. *Psychological Pitfalls.*
7. Herzig, A. J. *Quinine and Urea Hydrochloride in Nose and Throat Surgery.*
8. Tannenbaum, S. A. *Medical Contract Practice.*

1. Erdmann presents the results of further observations on sixteen cases of diverticulitis of the colon. He believes that pain in the left side of the abdomen with tenderness and rigidity means almost always diverticulitis. Left-sided appendicitis is a rare cause of left side symptoms. Prolonged chronic diverticulitis frequently becomes cancerous. Many "cancer cures" of this portion of the gut were really cases of chronic diverticulitis only. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MARCH 14, 1914.

1. BEVAN, A. D. *Medicine a Function of the State.*
2. LOWELL, A. L. *The Danger to the Maintenance of High Standards from Excessive Formalism.*
3. WHITEHEAD, R. H. *Administering the Preliminary College Year in Chemistry, Biology, Physics and Modern Language.*
4. HOLMES, C. R. *Hospitals and Their Relation to Medical Colleges and the Training of Internes.*
5. POWELL, R. W. *Registration Under the Canada Medical Act.*
6. CULLEN, T. S. *Adenomyoma of the Rectovaginal Septum.*
7. *MASON, J. M. *Dangers Attending Injections of the Kidney Pelvis for Pyelography.*
8. SIMPSON, F. E. *Radium in the Treatment of Blastomycosis, with Report of a Case.*
9. HABERMAN, J. V. *Mental Healing. An Admonition.*
10. BOURKE, J. *Primary Carcinoma of the Pancreas in a Patient Twenty-Two Years Old.*
11. *HOAG, A. E., AND SOLETSKY, M. *Perimyositis Crepitans. Report of a Case.*
12. BRAV, A. *Ophthalmoplegic Migraine, with Report of a Case of Recurrent Paralysis of the Right External Rectus Muscle Following Parturition.*

7. Mason in a very interesting and practical article, demonstrates the quite common occurrence of over distention of the renal pelvis by collargol used for pyelography, and subsequent damage to the kidney substance with renal infarction or even peritoneal inflammation. He quotes the work of Mallory on the histology of the condition and warns against the over-distention of the pelvis by more careful injection measured by the gravity or mercury manometer methods.

11. These authors removed a piece of muscle from a student suffering from perimyositis crepitans and found small ruptures of parts of the muscle and aponeuroses, which are later followed by hyaline thickening, which cause the creaking when two surfaces rub together. Over-exertion is the causative factor. [E. H. R.]

THE AMERICAN JOURNAL OF MEDICAL SCIENCES.

JANUARY, 1914.

1. *BARKER, L. F. *Differentiation of the Diseases Included under Chronic Arthritis.*
2. *SPILLER, W. G. *Some Causes of Disappointment in Operations on Brain Tumor.*
3. *MACCALLUM, W. G. *The Mechanism of Circulatory Failure in Diphtheria.*
4. *RUDOLF, R. D. *Bleeding in Typhoid Fever.*
5. *HALSTED. *Reconsideration of the Question of Experimental Hypertrophy of the Thyroid Gland, and the Effect of Excision of This Organ Upon Other of the Ductless Glands.*
6. *JAMES, W. B., AND HART, T. S. *Auricular Fibrillation: Clinical Observations on Pulse Deficit, Digitalis and Blood-Pressure.*
7. WARTHIN, A. S. *The Minute Changes Produced in Leukemic Tissues by Exposure to Roentgen Rays.*
8. BLOODGOOD, J. C. *Can It Be Proved from Clinical and Pathological Records That the Number of Cures of Cancer Will Be Greatly Increased by the Proper Excision in the Earliest Precancerous or Cancerous Stage of the Local Disease?*
9. ABT, I. A. *Unusual Type of Acid Intoxication in Infants.*
10. FOX, H. *Experience with Neosalvarsan at the Harlem Hospital.*
11. PEMBERTON, R. *The Metabolism, Prevention and Successful Treatment of Rheumatoid Arthritis. Second Contribution.*

1. Barker, after consideration of the different types of joint disease described both in ancient and in modern times, proposes a classification under the following main headings: 1. The true gouty arthropathies. 2. The arthropathies of severe nervous disease. 3. The (primary) hypertrophic osteoarthropathies. 4. The secondary chronic arthropathies, following various infections, and those following small foci of infection in various parts of the body. 5. The so-called (primary) chronic progressive polyarthritis.

2. Spiller, in discussing discouraging statistics in operations on brain tumor, writes particularly of the unfavorable effect upon the operative results of enlargement of the brain from tumor, distortion of the brain, especially from tumor in the posterior cranial fossa, and acute swelling of the brain,—all conditions which usually may be avoided by sufficiently early operation and proper technic.

3. MacCallum reports experiments which seem to prove that in animals injected with diphtheria toxin the heart is not materially weakened. This finding lends support to the theory that death in diphtheria may be due to vasomotor rather than cardiac failure.

4. Rudolf reviews the conflicting statements of the effect of hemorrhage in typhoid fever upon the course of the disease, some authors failing to recognize any favorable influence, while others support the evidence of Graves and of Trousseau, that improvement may follow. He publishes twelve charts of typical cases in which hemorrhage occurred (in one by venesection), in all of which the loss of blood was followed by a fall in temperature and improvement in the general condition without unfavorable effect on the pulse.

5. Halsted reports briefly upon experimental work upon excision of parts of the thyroid gland under aseptic precautions which failed to result in the hyperplasia of the remaining thyroid tissue which occurred in former experiments without asepsis. The explanation remains obscure.

6. James and Hart write to show how misleading an index of the condition of the circulation is the count of the radial pulse in auricular fibrillation. Of greater value is the simultaneous counting of the apex beat and of the radial pulse for recording which the authors have devised a method of indication on a chart. Of more interest is a method which they describe of determining the average systolic blood-pressure in these cases where the beats are of unequal force. The administration of digitalis caused a rise in blood-pressure thus estimated. [F. W. P.]

FEBRUARY, 1914.

1. *DEAVER, J. B. *Tuberculosis of the Breast.*
2. *CAMAC, C. N. B. *Dental Sepsis: Its Relation to the System.*
3. *WITHINGTON, C. F. *Pneumonic Hemiplegias.*
4. ERDMANN, J. F., AND MOORHEAD, J. J. *Splenectomy for Splenomegaly (Gaucher Type).*
5. *GREENWALD, I. *The Supposed Relation Between Paralysis Agitans and Insufficiency of the Parathyroid Glands.*
6. *COHEN, S. S. *On Some Angioneural Arthroses (Periarthroses, Pararthroses) Commonly Mistaken for Gout and Rheumatism.*
7. *BEER, E. *Leukoplakia of the Pelvis of the Kidney and Its Diagnosis.*

8. Simon, C. E., and Wood, M. A. *The Inhibitory Action of Certain Analine Dyes upon Bacterial Development.*
9. *Stern, H. *Typhlo-albuminuria.*
10. Pemberton, R. *The Metabolism, Prevention, and Successful Treatment of Rheumatoid Arthritis: Second Contribution.*

1. Deaver has collected 69 proved cases of mammary tuberculosis from the literature and adds 5 original cases. These he analyzes and discusses in detail both from the clinical and the pathological point of view. All but one were operated by one method or another, without operative mortality. The disease is regarded as essentially a surgical one, although tuberculin treatment is recommended as of possible value when used in conjunction with operation.

2. Camac writes to emphasize the importance of recognition and treatment of oral sepsis as a not infrequent source of arthritis, endocarditis, and of other septic processes in remote parts of the body, even though the manifestations at the original focus may be slight. Radiographs, a number of which accompany the article, are the chief means by which such processes are recognized.

3. Withington describes the occasional occurrence of hemiplegias in pneumonia. These are found generally in young and rather vigorous people and often end in recovery. Since the few cases that have come to autopsy have failed to show organic lesions in the brain, the cause is unknown.

5. Greenwald reports chemical examinations of the blood serum of patients with paralysis agitans to determine the content of acid-soluble phosphorus, a constituent notably increased in parathyroidectomized dogs. His failure to find that this is increased in paralysis agitans he reports as evidence against the theory that this disease is due to parathyroid insufficiency.

6. Cohen reports cases with joint symptoms in which the features seemed to warrant the conclusion that they were angioneural in origin. He discusses the clinical characteristics of these cases and refers to the literature.

7. Beer reports a case in which following attacks of renal colic shreds of pearly white membrane of the structure of epidermis were found in the urine. These are believed to have been thrown off from a surface of leukoplakia in the pelvis of the kidney.

9. Stern maintains that albuminuria without other evidence of kidney disease may be due to a communication of the lymphatics of the cecum with the urinary tract. [F. W. P.]

Berliner Klinische Wochenschrift.

No. 5. February 2, 1914.

1. *Bumm, E. *Further Experiences in the Therapy of Carcinoma by Irradiations.*
2. Warnekros. *On the Technic of Roentgen Treatment of Carcinoma.*
3. Lazarus, P. *The Present Status and New Aims of Radium-Mesothorium Therapy (First paper).*
4. *Pinkuss, A. *Further Work on the Mesothorium Treatment of Cancer.*
5. Fraenkel, E., and Gumpertz, F. *The Effect of Injections of Thorium-X on the Agglutinins.*
6. Grabs, E. *Experiences with Digifolin.*
7. *Kleinschmidt, P. *Clinical Experiences with Isopral as a Rectal Anesthetic.*
8. Buchholtz, F. *A New Successful Method of Treatment of Acne.*

1. The author, in a very enthusiastic report, presents 108 cases treated with radium or mesothorium. Only 40 of these cases were operable, and though some of them had been followed for only six months, only 15 of the 108 showed recurrences at the time of the communication. Of 12 cases of carcinoma of the cervix, nine were seemingly cured (to date), 2 had recurrences and 1 was not markedly affected.

The destructive effect of the rays is found to extend about 2½ cm, below the surface—not as deep as 3½ or 4 cm., as others have claimed. The radioactive substances do not have a selective action on carcinoma, as has been stated, but the young and active tumor cells are more rapidly and completely destroyed than are the connective tissue and supportive cells.

4. This is a short critical review of the whole subject of mesothorium therapy. Pinkuss suggests that carcinoma of the stomach can be treated by making a fistula through which the substance can be brought into close contact with the growth; he does not favor the method of passing it into the stomach on a sound or bougie passed down from above. He doubts the value of intravenous injections of thorium-x, as has elsewhere been suggested and tried. The best results of all treatment with radio-active substances are dependent on more exact knowledge of the proper dosage, time of application, and filtration; and careful working-out of these factors is of supreme importance.

7. The author has used isopral in 43 cases, giving 0.1 gm. (per rectum) per kilo body weight, one hour before operation. In five cases no further anesthetic was necessary; in all the rest it was. In 4 cases the effect of the drug was very slight, and in 4 others there was no effect at all. Seven cases, after waking up, were for several hours in a highly restless and excitable condition—at times out of their heads and almost maniacal.

The toxic effect in some cases was extremely marked, showing itself chiefly in the poor pulse, altered breathing and general appearance. Kleinschmidt concludes that although in some cases its action is almost ideal, its use is not to be generally recommended. [R. H. M.]

Correspondence.

ANTIVACCINATION AND THE LEGISLATURE.

Boston, March 28, 1914.

Mr. Editor: To the great surprise of many intelligent people the legislative committee on public health, Drs. Clarke, Bigelow and Hart dissenting, has reported favorably a bill permitting unvaccinated children to enter the public schools of the Commonwealth upon the written request of any parent or guardian who may not believe in vaccination. At present a physician's certificate is necessary for such admission. The bill was introduced and advocated by the antivaccination agitators.

Should the bill become law, much harm in the future will be the inevitable result. The number of unvaccinated persons in the community, already too large, would be greatly increased, thereby flooding the state with material ripe for infection upon slight exposure. Its enactment would be a decided step backward in legislation towards the days when smallpox was always in our midst, not infrequently springing up in epidemics, maiming and destroying large numbers of persons needlessly and inexcusably. It would be difficult to imagine any action of the legislature that would be more ill-advised, or more cruel to the helpless portion of the community and especially to the children of the poor, the ignorant and the careless, who are unable to protect themselves properly.

As the direct result of wise legislation, Massachusetts has been practically free from the dreadful scourge of smallpox for forty years. The present generation knows little or nothing of it. Only

those who remember the last severe epidemic in Boston in 1872-3, when nearly 4000 were attacked and over 1000 died, can begin to realize the terror, the distress and the demoralization of the daily activities of the community in consequence of its presence. The outside world shunned us. Business fell off to a marked extent and the attention of the people was focused chiefly upon the state of the epidemic. Can it be possible that another object lesson of this sort is necessary to enable us to appreciate the absence of this pestilence?

This disease is preventable, but not curable. The chief factor in its prevention is vaccination. Its value has been incontestably demonstrated in all civilized countries for more than a hundred years. Time is wasted in arguments on this question in well-informed circles. Vaccination, properly done and attended to, is one of the safest surgical operations known to the medical profession. For nearly ten years Massachusetts has prepared vaccine virus for distribution to its citizens free of expense. About half a million doses have been sent out and used with no known ill results. No purer, or more reliable virus has ever been made anywhere.

No one claims that accidents never occur after vaccination, as they occasionally do after the most trivial injuries. Within eight years the writer has seen one death from the prick of a pin and one arm amputated for the scratch of a needle, yet pins and needles have not been given up, nor has any legislation been sought to prohibit their use, as yet. The risks of our every-day life far exceed those from vaccination, while the benefits derived from the latter surpass our comprehension. The accidents are preventable. They are so rare that they are a negligible factor in the question.

Sensible people everywhere are so firmly convinced of the protective power of vaccination that they will continue to avail themselves of its benefits regardless of any legislation, past, present or future. Adults can protect themselves, or take the consequences. The helpless children of ignorant or thoughtless parents, however, deserve the protection of the state. That is the chief object of the present vaccination laws. It cannot be possible that in these days of unprecedented efforts to lesson the mortality of the young, we are ready to abandon one of the most efficient measures for accomplishing that object known to modern civilization. In some of the former epidemics smallpox destroyed half of the children under five years of age, to say nothing of the blindness and other mutilations in those who recovered. It is desirable to return deliberately to conditions approaching in any degree those of former times?

A word as to the evidence of the parties in hearing. One party consists chiefly of a few well-meaning, but terribly mistaken and irresponsible persons, whose vision is not achromatic, *i.e.* who do not see clearly, who accept cheap newspaper clippings, neighborhood gossip, etc., as evidence. They never refer to official records, as there are none favoring their peculiar ideas. They endeavor to prove their case with a lot of stuff that would not be accepted in any court in the land. Their judgment is so warped that they can see only one side of the question and will not accept any evidence not agreeing with their claims. As the lawyers say, they are not competent witnesses.

The other party to this discussion comprises the medical profession all over the civilized world, whose opinion is based upon the experience of more than a century, the sanitarians, health officers and all others having to do with health problems, together with a very large proportion of the intelligent public everywhere. The alacrity with which the general public resorts to vaccination in times of danger, shows their confidence in the measure. The evidence in its favor is so overwhelming that one is lost in amazement that its value can be questioned in these enlightened days. Is it reasonable to suppose for a moment that the great mass of intelligent people the world over is wrong on this matter and that the few persistent agitators are right? If the wonderful benefit of vaccination has not been proven, then nothing in this world is susceptible of proof.

If the members of the legislature believe that the reliable, the official history of vaccination and its effects is a lie, if they believe that the medical profession is composed of hypocrites and mountebanks preying upon the public for pelf, if they believe that under the pretence of "personal liberty," the helpless children of the commonwealth should not be protected, if they believe that the antivaccinationists are better and more reliable judges of the points at issue, than are the physicians, then they will vote for House Bill 1018, which is but an entering wedge to the repeal of all laws relating to vaccination.

On the other hand, if they believe with the medical profession and the vast majority of intelligent people everywhere that vaccination is a public benefit and hence that the citizens of the commonwealth should be protected from smallpox, as they have been for forty years, they will oppose the bill in question, thereby following the wise procedure of many former legislatures.

GEORGE W. GAY, M.D.
For The Massachusetts Medical Society.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE TWO WEEKS ENDING MAR. 21, 1914.

March 19, P. A. Surgeon W. H. Short from Receiving Ship at Mare Island, Cal., to the *Cleveland*.

March 17, Surgeon A. R. Alfred, from Naval Proving Ground, Indian Head, Md., to Training Station, San Francisco, Cal.

P. A. Surgeon H. L. Dollard, to Naval Proving Ground, Indian Head, Maryland.

P. A. Surgeon I. W. Robbins, Commissioned from March 28, 1913.

Asst. Surgeon C. I. Wood, M.R.C., Commissioned from February 24, 1914.

Asst. Surgeon J. M. Quinn, M.R.C., Commissioned from February 24, 1914.

March 18, P. A. Surgeon I. S. K. Reeves, detached from *Tacoma* to *North Carolina*.

Asst. Surgeon C. P. Lynch, detached from Naval Medical School, Washington, D. C., March 28, 1914, to *Tacoma*.

March 19, Surgeon C. D. Langhorne, detached from Marine Barracks, Washington, D. C., to the *Vermont*.

March 20, P. A. Surgeon M. C Baker, from *Pittsburg* to *Chattanooga*.

APPOINTMENTS.

DR. T. MITCHELL PRUDDEN, emeritus professor of pathology in Columbia University, has been appointed by Governor Glynn a member of the New York State Public Health Council.

DR. RUDOLPH E. DIEDLING of Saugerties has been appointed by the governor of New York a commissioner of prisons.

RECENT DEATHS.

DR. DANIEL SIMMONS, who died recently at Brooklyn, N. Y., was born in 1844. He served throughout the Civil War in the ranks of the Eighty-third New York Volunteers. Subsequently he studied medicine, and in 1872 received the degree of M.D. from the New York Homeopathic Medical College. He was a member of the American Institute of Homeopathy and of the Kings County Medical Society. He is survived by his widow and by one daughter.

Original Articles.

GONORRHEAL METASTATIC ARTHRITIS.

By H. W. E. Walther, M.D., New Orleans,

Clinical Assistant in Genito-Urinary and Venereal Diseases in the Tulane University School of Medicine; Assisting Visiting Genito-Urinary Surgeon to the Charity Hospital.

Since the year 1781,when Salle and Swediaur first made mention of a condition which they described as "an inflammatory articular affection dependent upon gonorrhea," that systemic complication of gonorrheal blennorrhagia now commonly known as gonorrheal rheumatism or more correctly as gonorrheal metastatic arthritis has, as Keyes states, claimed a greater share of the attention of the profession than its frequency warrants,—a claim which is due to its activity and its severity. That its importance is being more generally recognized is demonstrated by the fact that within the past few years much new thought has been added to the already voluminous literature on this interesting subject, and although all agree on the importance of early recognizing this condition clinically, still no two writers agree on the method of treatment. For this reason it has occurred to the writer that a compilation of the ideas expressed by the recent contributors on this affection together with a summary of their methods of treatment would be of material value.

Hahn of Breslau, who has made an exhaustive study of this disease, states that of the numerous metastases of gonorrhea which he has met with in his vast experience, gonorrheal rheumatism deserves first place. It has been reported from conservative workers that between two and three per cent. of all our patients suffering with Neisserian urethritis become afflicted with this disease. The malady is more common in men than in women. It has been found that the condition may be due to constitutional invasion and localization in the synovial membranes of joints, tendons, and bursae by the gonococcus alone, sometimes apparently to mixed infection, with pyogenic bacteria in addition. It occurs frequently after the passage of a sound into the urethra. Many cases have also been reported in vulvovaginitis of little girls and in gonorrheal ophthalmia of babies. Krissel states that women seem to be almost immune to this complication, which is supposed to be due to the fact that the vagina and not the urethra is the usual seat of gonorrhea in the female. This, however, is only a supposition. We find the initial infection at least as often in the female urethra as in the vagina. He believes moreover that the cause of this apparent immunity is to be found in the difference of the structures of the female urogenital tract and, secondly, to the lesser chance of traumatic injury to the urethra and vagina in the course of treatment of a gonorrhea. In the light of our present knowledge of the etiology of gonorrheal metastasis, it requires either local retention with a subsequent trauma of some sort or an abrasion of the protecting epithelium in order to allow the escape of the bacteria or their toxins into the blood-vessels or the lymphatics. Such a trauma may be a mechanical one, but a sexual excitement or a congestion from any source may serve the same purpose. Epithelial lesions may be produced by instrumentation, but the invasion of the deep urethra or the vesical neck and the trigone by the gonorrheal process leading to more or less congestion and bleeding is sufficient to expose smaller blood-vessels and offer an escape of the bacteria and their toxins. Neither endourethral instrumentation nor the invasion of the posterior urethra and the trigone usually occurs in the earliest stage of the disease and, therefore gonorrheal metastatic arthritis is rarely observed in this stage. It is rather the exception than the rule for our patients to develop symptoms of this malady in the acute stages of a gonorrheal infection, although I have seen it develop in the third and fourth weeks following the initial symptoms. It is rarely seen at an earlier period. In chronic cases it oft times appears before the prodromal symptoms make their appearance.

Two cases, as illustrations of early onset, which are still fresh in my memory, occurred some years ago while the writer was a resident interne in the Marine Hospital at New Orleans. The first instance was in the case of a stoker in the Navy who developed metastatic arthritic symptoms on the thirteenth day following his initial urethral infection with the gonococcus, and the second instance occurred in a marine whose arthritic symptoms developed exactly twenty-one days after his first clap. In both instances the patients denied all previous venereal infection and I had no reason to doubt the truth of their statements.

As to the number of joints which become involved, statistics show that in about 30 per cent. of the cases one joint only is involved and that in the remaining 70 per cent. the lesions are polyarticular. Regarding the distribution of gonorrheal metastatic arthritis, Lovett quotes 755 cases from the collective figures of Northup, Finger and Benecke and states that in their cases the joints were affected in the following order of frequency:

Knee	258
Ankle	125
Wrist	76
Elbow	53
Small joints of hand	50
Small joints of foot	46
Shoulder	44
Hip	42

Heel and toes	21
Temporomaxillary	16
Other articulations	24

These figures, I believe, compare favorably with those of all other workers who have taken the pains to tabulate their findings. All agree that the knee is the joint most commonly involved and sometimes we find it the only articulation affected. Large, swollen and intensely painful ankle and wrist joints are also common pictures in this disorder. The other joints are involved much in the same proportion as given in the figures above.

I desire here to report a case which to me was very interesting because of the fact that the articulation involved is one not commonly invaded by the gonococcus. The patient was a white male, single, 25 years old and a tailor by occupation. He gave a history of having contracted gonorrhea six weeks previously, had taken no treatment for the urethritis and he came to me, not for the urethral condition, but for severe pains "back of his right hip" as he described it. He still had a profuse urethral discharge in which I had no trouble demonstrating Gram-negative diplococci, there was swelling and severe pain on pressure over right hip localized to the area directly over right sacro-iliac joint and his suffering was so intense that it was with effort that the patient walked or even stood erect. Temperature 101 F. Joint was aspirated and 10 cc. of serous fluid withdrawn in which gonococci were demonstrated by centrifugal methods. Prostate and seminal vesicles were normal. The treatment consisted in absolute rest in bed, immobilization of affected hip with adhesive plaster strips, energetic local treatment for urethral condition and Bier's active hyperemia to affected joint. In two weeks time the urethral discharge had greatly diminished, the pains in the hip had disappeared and within three and a half weeks the patient was back at his usual occupation. Two years have now elapsed and there has been no return of the trouble.

The types of this affection that we usually see come under the following five headings:

1. Arthralgia without definite lesions in the joint.
2. Acute serous synovitis with much peri-articular swelling.
3. Acute fibrinous or plastic synovitis with slight effusion.
4. Chronic serous or purulent synovitis.
5. Involvement of peri-articular structures, such as bursae and tendon sheaths.

As to the management of cases of gonorrheal metastatic arthritis much has been written within the last few years. Practically everything known in therapeutics has been tried in the hope of finding some amenable remedy for this troublesome complication of gonorrhea but unfortunately, up to the present time at least, we have no absolutely dependable fixed method of treatment which we might conscientiously follow. Among the methods which have been vaunted from time to time might be mentioned: the employment of the galvanic and the faradic electric currents, the Röntgen rays, radium, the actual cautery, active and passive hyperemia according to the methods of Bier, wet hot and cold packs, blistering, tincture of iodine, ichthyol, and similar preparations locally applied, vaccines, serums and the bacterial derivatives. Of the surgical treatments we might mention aspiration alone, aspiration with injection of Murphy's two per cent. formalin in glycerin, arthrotomy and the Fuller operation of seminal vesiculotomy. These are but a few of the many methods; the list could be carried along *ad infinitum*.

Some years ago Kreissl was asked by a colleague how he treated his cases of gonorrheal rheumatism and his reply was, "By treating the gonorrheal focus." I am sure that today we all agree with him that this is the only logical procedure to follow for if the joint disease is due primarily to a gonorrheal urethritis, the inflammatory arthritis will subside promptly if the source of infection is eliminated. All of our injections, irrigations, dilatations and topical applications will fail to relieve our patients if the retention foci are not removed, be they in the prostate, the seminal vesicles, in Cowper's glands, in the follicles or in the crypts.

Cumston has recently laid great stress on the prophylactic measures which he has employed with success in the treatment of cases of gonorrheal rheumatism. He advises the internal administration of salol in five to ten grain doses, four times daily after meals and at bed-time. He cites a case of a physician who had gonorrhea twice and on both occasions there developed a severe tenosynovitis of the tendons of both feet. With this patient's third infection he was placed on ten grains of salol four times daily and the writer ends his report by stating that the patient rapidly recovered from the urethritis under local treatment and no symptoms of gonorrheal rheumatism appeared.

It seems still to be a disputed question as to whether the affected parts should be completely immobilized or not, and while many who have written on this subject recommend that the joints be absolutely immobilized over the entire period of the inflammation, others, among them Hume, are inclined to be more conservative and advise that the joint affected be kept in splints no longer than twelve hours on a stretch for fear that permanent ankylosis of the part may result therefrom. During the interval, in which joint is removed from the splints, passive movements might be practiced so as to retain its function as much as possible.

Pain is frequently a factor to be reckoned with in these conditions and whereas in some instances it will be mild and transitory, at other times it is of such a nature as to require the administration of morphine, codeine, veronal or the salicylates to relieve same. In gonorrheal tenosynovitis, which Cumston states is the mildest form of gonorrheal rheumatism, he advises rest of the parts affected and in intense pain he states that blood-letting works like a charm. Although I have not employed this latter method myself, it certainly is worthy of a trial.

The massage of the prostate and seminal vesicles seems to play an important part in the relief so frequently reported in some cases of this malady. Kreissl advises that massage of the prostate and seminal vesicles should be performed daily of from one-half to one minute duration, and states that this treatment should be kept up until no more septic material appears in the washings for at least two weeks, and even then it should be discontinued by gradually increasing the intervals between massaging.

Locally to the joints, lead and opium lotion, ice caps, hot or cold wet packs, saturated solution of magnesium sulphate, ichthyol fifty per cent., and the actual cautery have, I believe, given most satisfactory results. Holland instructs his patients to drink one-half gallon of water daily and to eat light, easily digested food, without much meat. He gives his patients an early morning bath, after which they are put to bed until noon; in the afternoons freedom is allowed if no pains are felt. Bier's obstructive hyperemia by means of the elastic bandage. should be employed early in the treatment of gonorrheal metastatic arthritis. The sooner after the onset of the articular pains the elastic bandage is applied, the better will be the results obtained. Bier stated that in cases in which this treatment is started within the first few hours after the pain sets in, the improvement is often so rapid and striking that the correctness of the diagnosis may be questioned. In three cases I have had the opportunity to verify these statements. I have seen three patients within a day after the initial symptoms of the rheumatism had set in. All three cases had been treated by me for chronic posterior urethritis of gonorrheal origin. I immediately applied the elastic bandage, also elevated the limbs in the interval of treatment in order to reduce the edema. Two treatments daily were given of ten hours each. In all three cases I found a marked diminution of pain in the parts affected, and also increased mobility. The treatment was continued for twenty hours daily until the fever had subsided and then the time of treatments daily were reduced. Bier's active hyperemia (steaming or baking the joint) has also been used with good results, in selected cases, but as a rule its results have not been as encouraging as those obtained by the passive hyperemia with the elastic bandage.

As far as can be ascertained, the actual value of the serums, vaccines and the bacterial derivatives in the treatment of gonorrheal arthritis has not been finally determined. It is commendable to note here that the fourth congress of the German Urological Association, which met in Berlin in the fall of last year, had an interesting symposium on serotherapy and vaccine therapy in its relation to urology, in which such men as von Wassermann, Schneider and Asch discussed this question. It is to be hoped that in the near future more will be known as to the actual value of these agents in genitourinary surgery. Hartwell, who reported a series of cases of gonorrheal arthritis treated by the vaccines, and who was one of the first in this country to try them in this condition, sums up his article by stating that: "From observations on 51 cases it would seem that gonococcus vaccines are a valuable therapeutic agent in gonorrheal arthritis in all stages of the inflammation except where ankylosis has occurred. They do not however, seem to be able to prevent extension to fresh joints in early cases, and certainly do not produce enough lasting immunity to prevent recurrence of arthritis. Autogenous vaccines seem to be more efficient than stock, thus corresponding to the known specificity of biological substances."

W. G. Young has reported 28 cases of gonorrheal rheumatism treated with the vaccines with these results: cases cured 20; improved 5; not improved 3. The doses he employed varied from 5 million to 50 million bacteria, and I think his results interesting because he states that practically no other treatment was employed in this series excepting the vaccines. J. S. Read, and, more recently, Holland have reported excellent results by using the mixed (polyvalent) gonococcus vaccine. Holland uses an initial injection of 400 million, followed in two days with 500 million; four days later he gives 900 million and this dose is repeated every four days until the desired results are obtained. Broeman has emphasized the importance of treating every case of gonorrheal rheumatism immediately with either the antigonococcus serum, gonococcus vaccine or the newer bacterial derivatives whether they are stock or autogenous products. The combined bacterins (Van Cott) seems to be more useful than the single strain cultures. The initial dose he places at between 10 and 20 million, running up the dose every second, third or fourth day, until about 50 million are being given every second or third day. Usually within a week or ten days improvement may be expected, but from four to six weeks elapse before all symptoms have subsided. The antigonococcic serum is administered in the same manner.

Nothing has yet been found that does a particle of good when given internally to our cases of joint complication following gonorrheal infection, so with this statement we can con-

scientiously pass over the internal treatment for something more promising.

The newer surgical procedures at our command, which have been employed in combating this Frankenstein of urology, have undoubtedly done much toward curing the severer forms of the disease. Of the numerous operations advocated by their enthusiastic originators, I will content myself by making mention of but four, namely, (1) aspiration of the joint alone; (2) aspiration of joint plus the injection into same of some antiseptic or disinfectant; (3) making incision into joint, irrigating and draining same according to the method of Schuller; and (4) Fuller's operation of seminal vesiculotomy. Taking them up separately we might say that it is reasonable to believe that some cases have apparently been cured by simply aspirating the accumulated fluid from the affected joint; sometimes a single aspiration will suffice, while in other cases the procedure must be repeated at intervals as needed. The aspiration of gonorrheal joints with the injection of an antiseptic or disinfectant solution has been popularized by Murphy in this country and by Hildebrand and Roux in Europe. Murphy uses a two per cent. dilution of liquor formaldehydi in glycerin, and of this solution he injects 5 to 20 cc. depending upon the quantity of fluid aspirated and the size of the joint. With this method he has reported excellent results and many other reports just as promising have come from other writers who have given this method a fair trial. The technique of Hildebrand and Roux differs little from that recommended by Murphy except that they inject tinctura iodidi (3i to 3iii) into joint instead of liquor formaldehydi.

When either or both of the above treatments fail, the joint should either be freely opened, cleansed, packed and drained, or double drainage should be instituted with daily through and through irrigations of 1-5,000 bichloride of mercury solution.

Fuller of New York has recently given us a new method for curing our cases of gonorrheal arthritis by his operation of seminal vesiculotomy. Up to the present time Fuller has performed this operation 251 times, 122 of which were for gonorrheal metastatic arthritis, without a single fatality. In his last report the author shows that most of the cases, both acute and chronic, were of very severe grade and it was primarily for the relief of the rheumatic symptoms that seminal vesiculotomy was done. He believes that the rheumatism is the clinical symptom of seminal vesiculitis which usually, by incapacitating the individual, brings him to the hospital; and in his experience at the City Hospital, when those suffering from rheumatism see the rapid cures resulting with little post-operative discomfort in those who have been subjected to seminal vesiculotomy, there is such a scramble for operation that no time has to be wasted in persuasion. In a personal communication to the writer, Fuller states that it is not logical, in his opinion, to employ any local treatment in this disease, for he claims that such treatment is decidedly faulty in that the individual is not freed of the primary focus which causes the toxemia of which the joint is only one of the evidences.

Up to the present time however, the Fuller operation has found few enthusiasts, the reason, I believe, being that most conservative surgeons look upon this operation as rather a severe ordeal to subject patients to, and most of us would prefer to try every other means at our disposal before having them undergo this operation. To do this operation undoubtedly requires some skill and experience. The technique cannot be properly acquired from the literature. To have seen this operation performed several times by a competent surgeon is, in the opinion of our leading urologists, the only manner in which it can be thoroughly mastered.

FURTHER OBSERVATIONS OF SEASONAL AND METEOROLOGIC INFLUENCE UPON TUBERCULAR PATIENTS.

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Through the year 1913 we continued our study of the correlation between certain phenomena manifested by tubercular patients and meteorologico-seasonal change. This is in accordance with the interesting results learned from a similar investigation carried on during 1912 and published one year ago.[1]

It should be worth while to collect facts and data pertaining to such clinical observations as seem casually to have some connection with weather change and to arrange them along side meteorologico-seasonal change. This is in accurrence. For this purpose corresponding indices on the charts represent the respective variations; and it can be noted almost at first sight the amount of coincidence or correlation occurring from day to day and month to month.

In this way a graphic arrangement by means of correlative indices gives a ready and impressive picture of the influence which the weather might have upon any group of tubercular patients in this locality.

"We live in the laboratory of the earth's atmosphere" says Prof. Ward of Harvard University.[2] This is particularly true of the sanatorium patient who, although sheltered from the extremes of weather, is so intimately associated with his natural out-door environment that he can hardly escape the influence of its

changes. Hence we should except the likelihood of some reaction by the tuberculate arising from weather and seasonal variations.

Our bodies try to adjust themselves to the changing conditions of the medium in which we live. A healthy individual although naturally better equipped with compensatory powers for adapting himself to his varying atmospheric environment has the means of seeking close shelter for the larger part of twenty-four hours, and especially from so-called undesirable weather; therefore he is perhaps not so readily subject to meteorological influence except if he be an individual who "incubates" to such an extent that exposure to any weather change effects him profoundly.

However, it should be said that among those patients who take all that the treatment offers, spending a maximum amount of time in the open air, that such a thing as a "cold" is very rare. While this patient is afflicted with a serious constitutional disease, he is nevertheless able to withstand the rigors of riotous atmosphere better than his well brother who must be inside the greater part of each day.

Last year our study was confined to the patients' weight changes by months, and at the same time to the effect of supplementary diet as a remedial measure in combating such of these changes as were of an unfavorable nature. In 1913 we investigated the same matter. Plates similar to those of 1912 are herewith presented.

Perhaps the best exhibit is the Gaining Weight Chart. The heavier index in the larger compartment represents the total number of pounds gained since admission by the male patients who have shown an improvement; at the foot of the chart may be seen two subjoined indices, the heavier of which represents the number of individuals in the male class gaining. The lighter indices above and below refer to female patients in the same manner. The number of patients involved in the make-up of this chart ranged between one hundred and ten and one hundred and thirty-five. The daily average number of patients for the year 1913 at the sanatorium was 178.56.

On this chart it is interesting to note:

(1.) The high points reached in the colder months and the sharp decline in the spring months, especially from the latter part of March to the middle of July when the low point is reached.

(2.) The women gained weight rapidly in January and February, also in September and October.

(3.) The large gain made by both wards during two weeks in October when the weather was so unpleasant that walks and exercise were much restricted and rest treatment in maximum amount was naturally in order.

(4.) Both indices leave off at the end of 1913 at a higher level than at the beginning of the year. Possibly this may be accounted for by the better cooperation on the part of patients, since the formation of the *"Sanatorium-Hospital Class"* system, whereby a greater number of patients are taking the treatment faithfully and therefore deriving greater benefit. Especially among the female patients did the sanatorium class distinction appear most popular, which may be one reason for their gross gain index running up so rapidly in the fall and early winter.

(5.) Since the total census declined slightly during the latter part of the year and since the number of patients discharged per month varied only in a small way, these two factors are practically negligible, in considering the index movements.

The trend of the indices of this chart correspond with those of a similar chart of 1912, confirming our ideas that the spring of the year constitutes a quite unfavorable season for the consumptive.

It is a matter of clinical observation that anorexia is then a common symptom among a clinic of tuberculates, which probably accounts for a considerable loss of weight.

There may appear an attendent mental phase characterized by depression, irritability of temper, unreasonableness and sometimes delusions. Thus, food which was most palatable and satisfactory to the patient during the winter months, not only loses its attractiveness, but is foresworn by the patient as "bad," "not cooked right," or "I can't eat that stuff." There seems to be a vicious circle, for with all this mental restlessness, comes a greater activity and a genuine and dangerous "spring fever."

Plate No. 2 is a discount chart which applies to the gaining weight chart. The idea is to have all the charts check up accurately to the census of the Institution, and also to explain for such part of the index movements as are clearly removed from probable seasonal influence. Thus "Patients not Weighed" and "Patients with Stationary Weight" account for the patients not enumerated on plates one and three.

Two indices which are not printed herewith deal with the census increase and the amount of meat consumption by months. The former increased from one hundred and seventy-two on March first to one hundred and eighty-two by the middle of July and then dropped to one hundred and eighty in October, which figure was maintained for the remainder of the year. Thus in those months of greatest decline in weight gained the census was increasing and was clearly a minimizing rather than exaggerating factor in determining the true intensity of seasonal variation in the spring months.

Dealing with meat consumption, the index falls in the warm months and rises sharply in the fall and winter, attesting to the genuine quality of the appetites of that season.

The "Weight Gained by Discharged Pa-

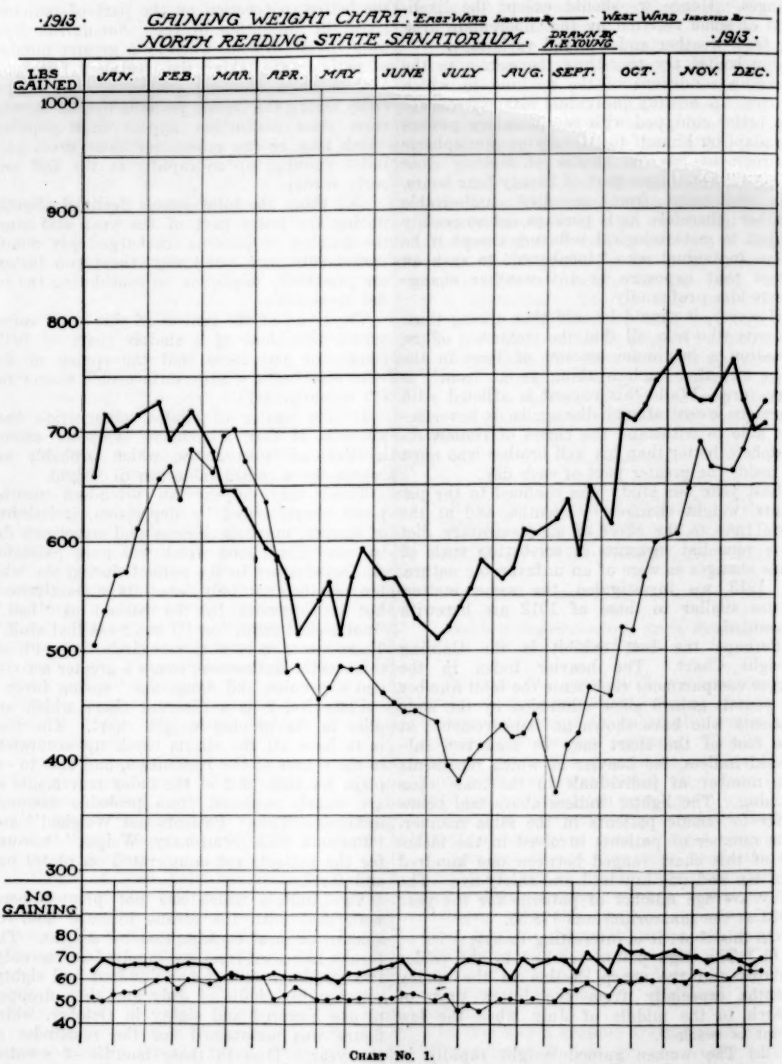


CHART NO. 1.

tients'' provides figures per week which should discount certain fluctuations shown on Plate No. 1. For instance, during the week of April seventeenth, female patients credited with ninety pounds of gained weight were discharged from the institution. A loss of one hundred pounds is shown on Plate No. 1 for that week. After allowing for weight discharged, a net loss is seen, which seems characteristic of that particular season of the year.

On the other hand from October sixteenth to the thirtieth patients' gains of seventy pounds were discharged in spite of which the main female index gained about eighty-five pounds, making a gain of one hundred and fifty-five pounds; thus there is a sharp contrast between the tendency in the spring months to

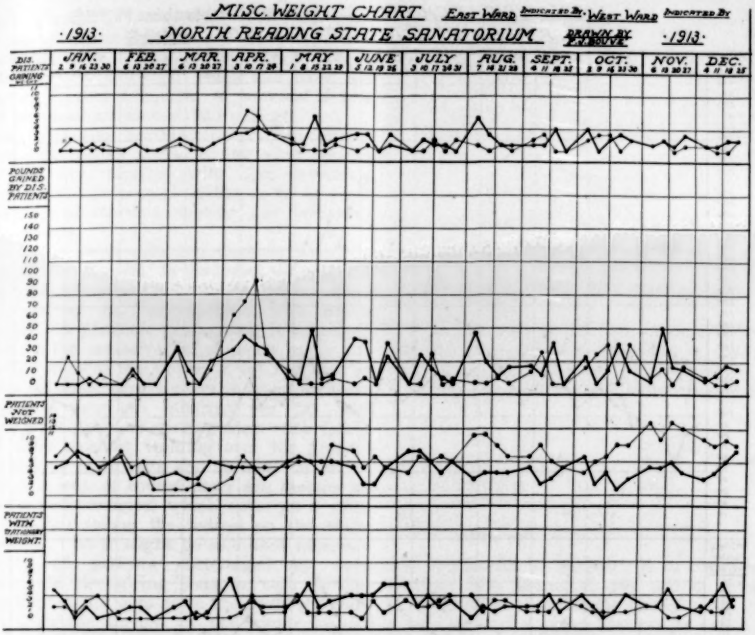


Chart No. 2.

cease taking on weight and that of the fall and early winter to gain weight and to improve in general condition.

Plate No. 3 gives four indices interpreted similarly to those of Plate No. 1 except they relate to emaciation rather than to gain in weight. This chart deals with those patients who were under admitted weight and registers quantitatively perhaps better than any other index could the activity of progressive disease in patients suffering with pulmonary tuberculosis. Three things are noticeable:

(1.) The minimum amount of weight loss occurs in the colder months; (2.) The maximum loss occurs in the warmer months; (3.) The rapid increase in amount of emaciation which appears in the spring months.

The final decline in weight of terminal cases is not shown on this chart because the weakness of such patients precludes their weighing for perhaps a long time before the end. Yet the last weight, taken some time before, must be reckoned in each week's account.

Some reason for the rebound in the lost weight indices in August and September is afforded by the fact that deaths in July outnumber all other months. The losses of patients dying are erased from the loss account and the index falls.

The factor causing the greater drop in these indices especially in the fall and winter months is constituted in the sort of patient who was below admitted weight in spring and summer but has managed to regain his weight lost and even to cross the line demarcating the gains from the losses, which change removes his records from Plate No. 3 to Plate No. 1. This change appearing in so many individual cases is confirmed in the aggregate by the direction of the indices on Plates Nos. 1 and 3.

In addition to the weight changes by months we began in 1913 an index chart picturing at various levels from the top down the records of daily barometer and wet and dry thermometer. These make three daily index curves and form "the weather department." The observations are taken on the premises and are usually about the same as reported by the United States Weather Bureau at Boston, Mass.

On lower cross lines are shown indices representing each day respectively; the total number of patients having streaked sputum and hemorrhages; the total number of bed patients; the total number having vesperal fever; and the total number having increased cough and chest soreness. By following the upright down one can see for any particular day the kind of weather which obtained and then the quanti-

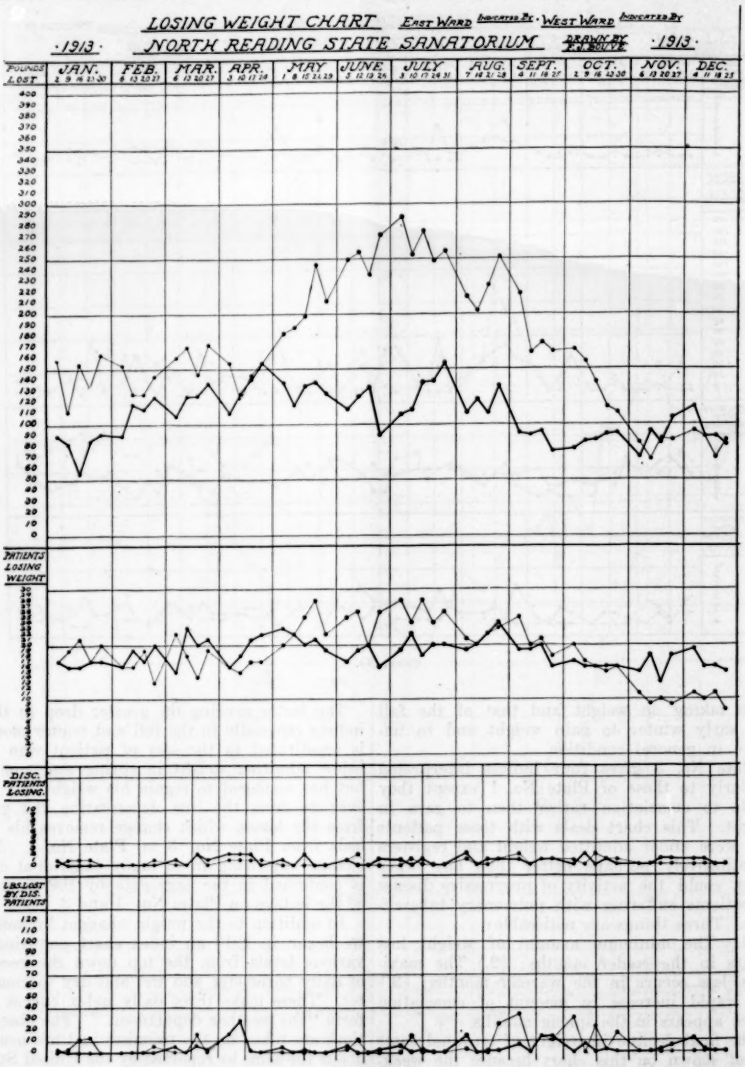


CHART NO. 3.

tative clinical reaction upon a group of approximately one hundred and eighty-five patients of which seventy-five per cent. are in the advanced stage. Whether there is a relation of cause and effect and if so how intense is the question at hand.

Reviewing the four charts which make up this series for the year the following observations can be made:

(1.) Barometer change seems to have very little affect upon the symptomatology. In a few instances hemorrhages have occurred following a fall in the barometer but in insufficient number of instances to justify constant relation. It is probably a matter of coincidence only in so far as barometer alone is concerned. There is a larger number of patients streaking in March, May and especially June than in

other months. Hemorrhage occurred more frequently in June than in any other month.

(2.) Relative humidity of high degree coincides with increased cough and chest discomfort, increased number of vesperal fevers, and increased number of bed patients.

(3.) Following weather relaxation and change from a protracted period of low glass reading wet and dry, together with high barometer, there seemed in several instances to be small epidemics of streaked sputum and occasional hemorrhages.

(4.) For seven different days in June the number of vesperal fevers rose to sixty-five and over, which is in excessive amount. Some reactions are not accompanied with humid weather. A plausible explanation is suggested, although the causative factor seems to lie outside the scope of this paper, in the fact that on several of these days visitors in large numbers, frequently over one hundred per day were visiting the patients, stirring them with family and other troubles, running over the grounds and making hard work and turmoil for all.

In this way of course there are factors not strictly meteorological which enter as a cause of variation among the indices on the plates presented. So it might be said that increased activity of patients encouraged by open weather in the spring time to walk further than they should cuts down the possible weight gain from the amount of the winter months when the heavy roads forbid extended walks. There are other reactions shown by the indices representing clinical symptoms but in a sporadic manner and apparently without definite relation to weather change. With two years' series of this sort before us more correlation may be seen.

Owing to the small lettering and complexity of these charts it is not at the present time practicable to have them reproduced among our published plates.

Many patients give a common history of onset of tuberculosis stating prodromal symptoms as in March, April and May followed by definite warning in the way of a hemorrhage or "pleurisy," "plural pneumonia," or "grippe" in June or July. This is particularly true of patients entering the sanatorium in the fall or winter months.

Accordingly, in view of the reactionary effect of the spring months upon the tuberculate it behooves one to be particularly critical of suspicious cases presenting themselves with perhaps vague signs but nevertheless real symptoms of pulmonary tuberculosis appearing in this unfavorable season.

REFERENCES.

[1] "Seasonal Variation of the Symptomatology of Pulmonary Tuberculosis," BOSTON MED. AND SURG. JOUR., March 20, 1913.
[2] "Elementary Meteorology," Ward.

NOTE.—One object in this investigation is to afford occupation of light and congenial nature for patients such as become unhappy when confronted with the enforced idleness involved in sanatorium residence.

This work meets the requirements for and represents the collaborative effort of about ten patients some of whom are now expatients.

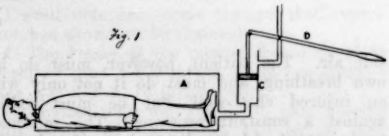
Mr. F. J. Bouvé, originator of the index drawings, was clearly helped in regaining health by the hearty interest he evinced for this work. Mr. Albert Young and Mr. C. W. Cushing have continued the drawings supplementing them with some added and excellent features. Misses N. Murphy, Florence Marsh, and Bessie Jean have collected much of the data on the women's wards. To these patients and to others who have helped I express my grateful appreciation for their earnest coöperation and faithful work.

N. B. B.

AN APPARATUS FOR USE IN OPERATIONS ON THE OPEN THORAX.

BY CARL A. EWALD, M.D., SEATTLE, WASH.

It is the purpose of this communication to describe a mechanical principle in artificial respiration, which the writer believes has not thus far been made use of. It may have a practical application in surgery. A in Fig. 1 is an air-tight box, having at one end an opening B, lined with an inflatable rubber tube. C is a cylinder with a piston that can be raised and lowered by a handle D. A pipe connects C with A.



The subject is put inside, the head projecting through B. The lid is made tight and the tube about the neck inflated to make an air-tight joint. When the piston in C rises, a fixed amount of air which before filled A now fills both A and C. A fixed quantity of air which before occupied say 29,000 cu. inches now fills a space of say 30,000. The air pressure within has therefore, changed from 15 pounds to 29-30ths of 15, or 14½ pounds. When the handle is raised the air in C is forced back into A and the pressure restored.

The pressure within the lungs, however, always stays at approximately 15 pounds, because the lungs are open to the outside air through the trachea. When, therefore, the pressure in A is lowered, the chest expands, and air enters the lungs. When the piston descends, the air pressure in A returns to the normal, and the lungs become deflated through the elasticity of the chest walls and of the alveolar tissue. It is possible in this way to keep up an effective artificial respiration.

Before I had finished the construction of this apparatus, a further use of its principle suggested itself,—its possible value in operations on the open thorax. The most conspicuous apparatus in this field is Sauerbruch's Cabinet. In this a constant negative pressure is maintained outside the chest while the air in the lungs is in free communication with the out-

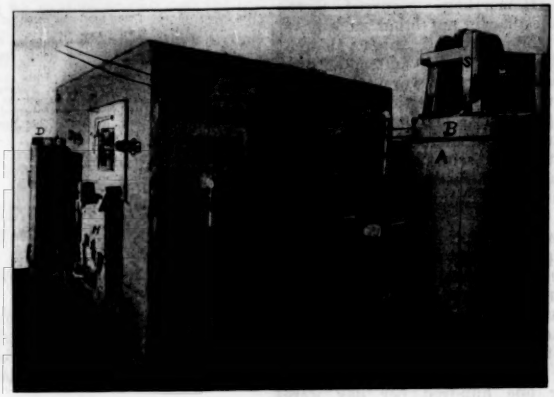


FIG. 2.

side air. The patient, however, must do his own breathing, and must do it not only with an injured chest-wall, but he must expire against a constant resistance. The muscular work instead of being directed to enlarging the chest, as in normal breathing, is done to deflate the chest, an act which in normal respiration is purely passive. These are reasons why Sauerbruch's device and the many modifications of it, including the various positive pressure cabinets, have not come into general use.

Other means have been devised to maintain respiration in the open thorax. Intratracheal insufflation is, perhaps, the most important. After reviewing them all, however, I still felt that the principle above described offered the best hope for a successful solution of the problem.

If we made our box large enough, with a pump correspondingly big, the subject with his head outside, could be made to breathe just as in the small box. The surgeon within would breathe the air of the closed cabinet. This I could show with my first apparatus,—a cabinet 6 ft. x 2½ x 1½. In the experiment I acted both as Versucher and Versuchsthier.

First I got inside the small cabinet with my head out, as in Fig. 1. When the pump was operated I could feel no change of pressure on my body, but my breathing was synchronous with the movements of the piston in spite of any moderate effort to the contrary. When I counted aloud and the piston went up, I missed a count or two until it descended.

I next closed the opening for the neck, got entirely inside, had the lid closed, and breathed the air within the box while the pressure was being changed from 15 to 14½ pounds some twenty times a minute. These pressure changes could not be detected so far as concerned my breathing. There was, however, a marked Politzer air-douche effect on my ear-drums, because obviously, the inner side of the tympanum does not feel the pressure changes as promptly as the outer side.

These two experiments showed: 1. That artificial respiration can be kept up effectively with such an apparatus allowing the anaesthetizer on the outside full access to the patient's head. 2. That the surgeon inside the cabinet feels no effect from the changing pressure except a somewhat disagreeable sensation in his ears.

I next built a cabinet 8¼ feet x 7 2/3 x 7 feet high, shown in Fig. 2. The frame was of fir scantling covered with one-inch boards and these covered with galvanized iron soldered at the joints. A window W, a door D, and an opening H for the neck, were provided and made tight with gaskets of rubber tubing. A U-tube partly filled with water recorded the pressure.

Instead of an iron pump, I used a better device,—a sheet iron cylinder B, 33 inches in diameter by 52 inches long, closed at the upper end, which moved vertically in another cylinder A, 36 inches in diameter by 48 inches high, filled with water to within 10 inches of the top. A 6 inch pipe P from the cabinet passed through the bottom of A to a height of 50 inches.

When the cabinet was closed and B then raised, part of the air in the cabinet passed into B and the pressure fell. When B descended the air within was forced back into the cabinet and the pressure restored. The work was done by a five horse-power induction motor. Three sets of iron gears reduced the speed from 1800 to 16 revolutions per minute. An iron crank 8½ inches long, carried at its end a loose iron block, which moved in a slot on the underside of a wooden lever 6½ feet long. One end of the lever was fixed. To the free end was fastened a leather strap S, which lifted B. When the crank turned the iron block mov-

ing in the slot, raised the free end of the lever 34½ inches. B returned by gravity and suction due to lessened pressure within.

A certain amount of leakage about the door and the opening for the head could not be prevented. This was found to be an advantage. The air that leaked into the cabinet when B was raised, would not all pass out again when B descended. After a few movements the pressure instead of being normal when B was down, became positive. As a positive pressure was not desired, a leather valve 5 inches square opening outward, was put in the top of the cabinet. Whatever air now leaked in was, most of it, forced out through the valve. The leakage lessened the efficiency of the apparatus somewhat, but it provided a change of air. It made unnecessary a device I had planned for filtering the air of carbon dioxide.

The volume of the air in the cabinet was 435 cu. ft. and of B above the water when up, about 17 cu. ft. We should therefore, have expected a maximum negative pressure of a little over a half pound per square inch, corresponding to about fourteen inches of water pressure. The greatest negative pressure obtained, however, was 10.2 inches. This was due 1. To the sucking in of the sides of the cabinet; 2. To leakage; 3. To friction of the air passing through the pipe. The six sides moved in a half inch at the centers when B was up. This decreased the volume of the cabinet over four cubic feet, and in effect reduced the volume of B by that amount. It accounted for most of the loss of efficiency.

The relative unimportance of the leaks was shown by opening three holes purposely left in the walls of the cabinet. A 1-inch opening reduced the negative pressure from 10.2 inches to 9.6. A 1½ inch opening reduced it to 9.3 inches. With two 1 inch and one 1½ inch openings, the negative pressure was 8.4 inches. With rigid construction, to avoid collapse of the sides, we could therefore leave an opening big enough to admit all the air needed by those inside the cabinet without greatly lessening the efficiency of our apparatus.

Experiments with this larger cabinet showed that it behaved exactly as the small one had. The subject with his head outside breathed synchronously with the movements of B, while those inside the cabinet felt nothing but a rhythmical pressure on the ear-drum and the bulging upward of the floor. Three or four persons could have remained inside for hours without difficulty of respiration. An opening that could be closed to any desired size, should be provided. This would serve primarily to regulate the negative pressure. Incidentally it would admit fresh air to those inside. A negative pressure which would be harmless to the lungs when the chest is closed, might be disastrous if applied directly to the lungs as when the chest is open. The difference of pressure which the unsupported lung tissue can safely bear must be determined by the surgeon and the opening then adjusted to limit the negative pressure in the cabinet to that amount.

Unfortunately, I was unable to do any experimental work on living animals. I secured, however, a dog at the City pound, that had just been killed by coal gas. I arranged the animal so the head was outside the cabinet and the body inside and opened the chest. The lungs were so contracted they had disappeared from view behind the engorged heart. When the motor was started the lungs were filled and deflated with perfect regularity.

From my work with this apparatus during the five weeks I had it in operation, I believe it offers a better means for the safe conduct of operations inside the open chest than any I have been able to find described. I hope it will be more fully tried out by others who have the facilities for carrying on work with living animals.

I shall note here some changes that experience has shown to be desirable:

1. The frame of the cabinet should be of fir or yellow pine 3 x 6 inches, 12 inches apart,—mine was 2 x 4, 16 inches apart.

2. Enclose with well dried 1¼ inch flooring with plenty of white lead and oil in each groove before tongue is fitted in. Give the whole two coats of paint. This will make an air-tight cabinet without use of a noisy iron covering.

3. Finish inside with ceiling or flooring nailed on diagonally to give added stiffness.

4. Size of cabinet about 11 feet x 12 x 7½ feet high.

5. Size of cylinder B for larger cabinet, 48 inches in diameter x 50 inches long, with vertical movement of 34 in. It should be of 16 gauge galvanized iron. Cylinder A should be 3 inches larger in diameter.

6. Size of pipe from cabinet 12 inches in diameter, 10 feet long, so machinery and cabinet can be put in separate rooms to avoid noise.

7. Pinion on motor shaft should be of rawhide to avoid noise. The other gears run slower and may be iron.

8. An opening in the side of cabinet 4 x 6 inches, which can be closed to any degree by a sliding plate operated from the outside or from within. This is to adjust the pressure and admit air for breathing.

9. A heavy plate glass top to admit light from above and allow spectators from suitably arranged seats, to watch operations.

The writer would be glad to give further details to any one desiring to carry on work in this field.

Scarlet-Fever in Cohasset.—Report from Cohasset, Mass., on March 29, states that scarlet-fever is at present epidemic in that town. Eight cases of the disease have been recently reported and the local schools are closed.

INSANITY IN CHINA.

BY ALFRED C. REED, M.D.,

Assistant Physician, Yale Hospital, Changsha, China.

THE question of the psychology, both normal and pathological, of the Oriental races, is of interest in two ways. It is of professional and scientific interest because it is such an untried field and offers so many alluring and wholly unknown lines of exploration. For the practice of medicine in the Orient there is imperative need of better understanding of these things not alone for the successful treatment of mental and many physical diseases but more particularly for their prevention. In the second place, the psychology of the Oriental races is of interest to the American physician because of the very practical and increasing relationship between the Orient and America, due to closer trade relations and the present tremendous awakening of Japan and China. The practice of medicine along western lines, and the introduction of modern scientific education and methods, are making rapid progress in Japan and increasingly so in China. The initial recognition of the Chinese republic by the United States has increased the Chinese regard for things American, and their desire for American customs and arts. American medicine now finds in China an opening never before presented. It will be to the advantage in a large degree of the medical profession of western countries, as well as to the great advantage of China if this opportunity is adequately met.

Aside from all these facts, the physician of all men can least afford to be provincial. Wide information must be his. Travel and knowledge gained from many lands are necessary to keep him broad-minded, energetic, sympathetic and a leader of men's thoughts.

China offers unusual opportunities for clinical and scientific investigation, and facilities are becoming available for such work. The results of such work will be applicable not only in China but also in western countries. Many problems are pressing for solution in the lines of public health and preventive medicine, clinical practice, surgery and the specialities, especially in diseases of the eye, skin and nervous system and in pediatrics. A problem can best be attacked however after it has been clearly defined. This is especially true in the realm of mental disease. If these facts hold in the United States, they are even truer in China. The pathological psychology of the Chinese is an unexplored field. There is practically no recognition or care of the insane from a public stand-point. Data are hard to get and of corresponding value when gotten. Here as in other lines, one of the primary needs in a medical way in China today is the need of statistics of incidence and local causes and characteristics of disease.

It is such considerations as these which lend special interest to a report[1] in the *China Medical Journal* by J. Allen Hoffman on patients discharged from the John G. Kerr Hospital for the Insane in Canton. Hoffman reports 312 cases discharged during the year 1912. Of these, 40% showed manic depressive insanity; 20% dementia praecox; 17.5% dementia paralytica; 3.5% exhaustive psychoses; 2% alcoholic insanities; 1.5% involutional psychoses, and the remainder scattered.

The manic depressive group showed the same preponderance of females over males which is found elsewhere. The average age of this group was 28 years, which also corresponds to figures in the United States. This was the largest group and showed the widest range of ages, from 15 to 62. Of the 125 manic-depressives, 22 showed paternal hereditary taint, 11 maternal and 4 collateral taint, a total of 30%, but more than half of the group were received through the police and no history could be obtained. Here too must be reckoned the fact that the maternal family history is often unknown. A complete record therefore would probably show the same degree of hereditary predisposition as in the United States. Among the vicious habits of the parents of these cases opium addiction and alcoholism were more common than in any other group. Venereal disease in the parents was rare. Manic depressive insanity often seemed to follow some season of festivity and drinking, and was especially common after the Chinese New Year. 28% of these cases gave a history of previous attacks. The results of treatment were not different from those at home. 61% were discharged cured, 24% improved, 8% not improved and 6% died.

As in the United States, dementia praecox is of frequent occurrence, forming 20% of Hoffman's cases. In this group there were over four times as many males as females. The average age of onset was 18, the actual time varying from 15 to 24 years. The hebephrenic type was most frequent and usually appeared in young men of the better class families socially. The paranoid type was less frequent and appeared at a somewhat greater age. Hereditary predisposition seems to be the great causal factor in South China. Opium addiction and alcoholism were of frequent occurrence in the fathers of these cases, and seemed to have a special influence in favoring mental weakness in the children. In many of these cases the exciting cause of the disease was in some way associated with the sexual life of the individual. Hoffman notes the fact that a surprisingly large number of cases of dementia praecox which in the United States are adjudged hopeless outside of an institution, in China are able to make a livelihood and return

[1] Hoffman, J. Allen: A Report of Patients Discharged from the John G. Kerr Hospital for Insane During 1912. China Medical Journal, November, 1913, p. 369.

to their homes. The easy-going leisurely pace of ordinary Oriental life is responsible for this, as is also the absence of the mental stress, competition and hurry of America. We see here a practical illustration of the mental results of the two environments.

Of Hoffman's cases, the third largest group was dementia paralytica, and in this group were four times as many men as women. While syphilis is wide-spread in China, the strange fact remains that dementia paralytica and other para-syphilitic affections are rare. In explanation of the high percentage of this disease at the John G. Kerr Hospital, Hoffman states that these cases were largely among persons who had travelled outside of China, some as coolies, some as merchants. They had been subjected to various hard-ships at sea, and were addicted to venereal excesses as well as to alcoholism or opium. All who could give a history, had contracted syphilis abroad, especially in Macao, the Malay states, Borneo, the Philippines and North and South America. Among the southern Chinese who have never left their own country, paresis is uncommon. The author points out that it is a subject demanding investigation as to whether syphilis alone is responsible for dementia paralytica, or whether other factors such as debauched living and the stress of the competitive western life enter in also. Or the syphilis of the Orient may be caused by a spirochaete of a different strain which does not tend to produce para-syphilitic affections.

Of the eleven cases of exhaustion psychoses, nine were in men and only two in women, just reversing western statistics, but explained by the shock of fear and exposure during the war of rebellion of that year. Alcoholic psychoses ranked fifth in number, though Hoffman considers them to be increasing. In five years in China, he has seen but one case of delirium tremens.

The opium habit was responsible for very few of this series of cases, but Hoffman reports having found whole families of children who were imbeciles, idiots, or dements, and in whose history the only causal factor apparently was opium addiction in the father.

The conclusion is reached that insanity is as common, if not in fact more common in South China than in the west. One strong contributory factor to this condition of affairs, is the custom of ancestor worship which demands that every male must have off-spring. Even demented persons are at times taken out of hospital that they may marry and beget children. Naturally this results in a greater increase of mental disease among the wealthier and better classes than among the poor who often can not afford to marry.

Three facts deserve special mention in a consideration of the prevalence and varieties of mental disease in China. Both are substantiated by the witness of many observers. The first is the absence to a great degree of alcoholism as a common vice except in the coast-wise cities. This largely removes the influence of alcohol as a hereditary factor in the development of mental disease, and in the production of mental defectiveness. At the great festival of the Chinese New Year, over-indulgence in alcoholic beverages is more common as it is also on other gala occasions. But as a chronic common vice, it has nothing like the prevalence found in western countries. The second fact is the frequency of syphilis in the primary, secondary and tertiary stages and the extreme infrequency of para-syphilitic conditions. It is a matter of clinical observation that arterio-sclerosis and thickening of the arteries is excessively common. Aneurysm however is rarely seen. Hemiplegia from embolism or thrombosis is frequent while tabes and paralytic dementia are quite unusual.

The third fact of special interest is that while conditions of heredity, opiumism and alcoholism, the latter chiefly in the coast cities, favor the development and increase of mental disease and defect, and while these diseases are probably as frequent in China as in America, nevertheless the lack of the stress and strain of life in America makes the results of such disease in many cases far less serious than the results of similar conditions in America. It is easier for the weakened mentality to take care of itself and be independent in China because of the machine-like routine of the ordinary life of the people and their freedom from exciting and disconcerting agencies of various sorts which in other countries are all too common. It must be noted too that there is more than a little truth in the often made observation that the Chinese differ in their nervous make-up from Occidental races. They often seem indeed to be devoid of nerves and utterly unaffected by and oblivious to, many things which a western man finds not only irritating but really unbearable. This placid disregard for things we usually associate with "nerves" must have a more or less important bearing on the development of latent causes of insanity. At present it is impossible to estimate this influence, but it is very real and ought to be an able adjunct if properly used, for the prevention of functional insanities whose out-break depends on some exciting cause in the immediate environment of the patient.

The student of heredity finds a rich field in China where genealogies are so carefully preserved. Many old families appear to be dying out, their energies and vigor dissipated, and some of the reasons lie close at hand. Too close inbreeding is not a factor, because of the deep repugnance and even prohibition of marriage between persons even distantly related. Usually the same surname, even where no blood relationship exists, serves to prevent marriage. But on the other hand, every male is virtually forced to have off-spring and the belief is well-nigh universal that daily sexual intercourse is

necessary for health. The debilitating effect of this and the gross moral tone of the people as a whole, has much weight in the perpetuation of poor and defective stock. Coupled with this is the fact that tuberculosis in every form is rampant and that venereal disease is rapidly increasing. It is evident that the percentage of mental defectives and insane would reasonably be high.

Under the new government, republican in name at least, China has great possibilities. Not the least of the necessities for her advance, is the development of public health work and the investigation of her great medical problems. If western nations like America are only now just awakening to the close relation between economic efficiency and public health, it is small cause for wonder that China with her inherent belief that human life is her cheapest commodity, should not yet have appreciated such a relation. The near future however promises to show a great advance both in the popular recognition of such things by the Chinese, and also in active measures to remedy existing conditions.

EDUCATIONAL STANDARDS FOR NURSES. STATE REGISTRATION AND TRAINING SCHOOL INSPECTION.

BY SARA E. PARSONS, R.N.,

Superintendent of Nurses, Massachusetts General Hospital.

UNDOUBTEDLY the standards for nursing education set by the American Red Cross is the most important fact in the nursing field today. All nurses with a spark of patriotism desire to be enrolled for the service of their country in time of war or calamity. Any school that would have the future welfare of the country at heart must desire to equip its pupils to meet the national standards. The school that pursues any other policy is, in my opinion, pursuing a suicidal course.

No one but a reliable woman with good moral standards and a complete all around training ought to be enrolled for active service, as no one can predict what phase of illness a nurse must deal with in Red Cross emergencies. The War Relief Board of the American Red Cross has created a national committee of fifteen to establish a uniform standard of qualifications to govern the enrollment of nurses. The committee in full is as follows: Jane A. Delano, R. N., Chairman; Mabel T. Boardman; Mrs. William K. Draper; Major R. W. Patterson; Dr. T. W. Richards; Dr. William Welch; Mrs. Frederick Tice; Emma M. Nichols, R. N., (City Hospital, Boston); Alma E. Wrigley; Mrs. Whitelaw Reid; Anna C. Maxwell, R. N., Isabel McIsaac, R. N., and Julia C. Stimson, R. N.

What are the requirements, and are they just?

TRAINING. The nurse must have had at least a two-years course of training received in a general hospital which includes the care of men and has an average of at least fifty patients during the applicant's training. In cases where subsequent hospital experience, or a post-graduate course would seem to supply any deficiency of training, applicants may be enrolled with the approval of the National Committee.

Graduates of State Hospitals for the Insane are not eligible unless their experience includes at least nine months training in a general hospital either during their course of training or subsequent thereto. In states where registration is required by law graduates of schools not meeting the requirements of the State Board of Registration will not be considered eligible for enrollment. Applicants must have the endorsement of the American Nurses' Association and of the Training School from which they graduated.

They must be at least twenty-five years of age.

It will be noted that an applicant may make up her deficiencies by post-graduate work so that these standards cannot be said to be unreasonable.

In view of the general ethical reasons why nurses should be adequately prepared for the profession they voluntarily assume, is there any just objection to an inspection of training schools by some properly qualified person appointed for that duty by the State Board of Nurse Examiners?

Is there any good reason why such an inspector should not be selected from nurses who meet at least the minimum standards set by the National Committee?

Is there any logical reason why hospitals that undertake to run training schools should not stand in the community for what they really are?

If they wish to meet national standards why should they not affiliate to make up their deficiencies as most recognized schools today are obliged to do?

Some of the largest and best-known schools in Boston are dependent upon smaller and special institutions to give their pupils experience which their own wards cannot supply. The Boston City Hospital, the Massachusetts General and the Peter Bent Brigham are good examples of the large hospitals that affiliate, and the Children's Hospital and the Adams Nervine are notable examples of what small special hospitals can do for their schools when determined to meet definite standards.

It is both difficult and expensive to maintain a good training school, but most hospitals find that it pays in results.

New York hospitals that wish to maintain training schools eligible for registration with the Board of Regents must give at least a two years course in a hospital or hospitals giving definite kinds of experience, and the schools must submit to the Regents papers to show that applicants have had at least one year in high school *or an equivalent* before entering the school. It is this last requirement that seemed to cause so much controversy between medical superintendents of hospitals and the nurses who stand almost unanimously for such standardization, (although they would prefer higher standards and intend to raise the educational requirements.) Women with less education than that must make up their deficiencies if they wish to care for the sick in New York as registered nurses.

To train, graduate and register women of such a low standard as a grammar school education implies an imposition on the public (that eventually pays for it in dollars) that is not to be endured.

The position of nurses as a body who are insisting on better education and better opportunities needs no defense in the mind of any thoughtful man or woman, but the plea made by a few who are loud in their cry for no restrictions on those who go into the hospitals and homes to nurse the sick is sometimes so plausible as to persuade those who do not carefully think out the whole situation.

Opposed to the names of men who are quoted as objecting to state registration for nurses; for training school inspection, etc., there are hundreds of notable men and women who endorse the movement.

May I quote from a letter recently sent me by a hospital trustee of another state who has recently become interested in the nurses educational movement—

"Small hospitals with training schools that are designed by Boards of Trustees for utilitarian purposes have much to answer for. Too many training schools are issuing diplomas that in substance certify to residence for a continuous term of months at some hospital where the holder has been a very satisfactory maid of all work.

"The laymen, who constitute the governing boards of hospitals that maintain training schools, have not been impressed with the moral obligations they assumed when inviting a young woman to enter the training school. The uppermost thought has been that it was an inexpensive and accepted method of paying for the care of sick people dependent on charity.

"Much good can be accomplished if an organized educational campaign could be conducted in the ranks of the laymen who govern the hospitals. Thousands of these well intentioned conscientious men are big in their business world but small in the knowledge that covers the subject of nursing education. I have been in hospital work very actively for twelve years and when I think of the utter ignorance of nursing education that blinded me for nine years I wonder what use I made of my eyes and ears.

"In detail this letter may not interest you, but its chief point is that you can readily see that an officer of an obscure country hospital has been awakened by the echo of the gospel that earnest women of the nursing world have been preaching."

The above letter speaks for itself. There is at present in Boston a progressive, humanitarian movement on foot to provide nursing and household care for people of moderate means, (Household Service Bureaus.) The Women's Municipal League is behind it, and a committee of its members, doctors and nurses are framing a curriculum, and searching for hospitals where attendants may be taught to do this much needed work. Such attendants may be of untold service in the community if provision is made so that the general public may readily distinguish between the trained registered nurse, and the attendant.

For the success of this project which is one of the most important social movements of the present day it is important that the State Board of Nurse Examiners be empowered to inspect training schools so that the registered nurse of the future in Massachusetts may stand before the public as one who has had sufficient practice and theory to warrant confidence when people wish to employ a trained nurse.

The attendant should also meet certain definite standards and be licensed or registered to practice. She will not take the place of the trained nurse any more than the trained nurse takes the place of the doctor but she will supplement the work of both.

In hospitals where the problem of training nurses for registration is too difficult we should find the laboratory for the training of attendants.

All persons who are interested in the 90% of the population who most need consideration will, it is hoped, help the trained nurses and the Board of Nurse Examiners to get their training school inspector, and also support the effort to provide the community with trained attendants.

HOSPITAL BEQUEST.—Under the will of the late Frederick Townsend Martin of New York $5,000 is left to the Albany Hospital, Albany, N. Y., to endow a bed in memory of his mother.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending March 31, 1914: Diphtheria 46, of which 4 were non-residents; scarlatina, 130, of which 13 were non-residents; typhoid fever, 3; measles, 92, of which 1 was non-resident; tuberculosis, 50.

Clinical Department.

TREATMENT OF HEMORRHAGIC DISEASES.

BY H. GILDERSLEEVE JARVIS, M.D., HARTFORD, CONN.

Assistant Surgeon to the Hartford Hospital.

IN past years little progress has been made with the problems of the etiology and the treatment of hemorrhagic diseases. The etiology still remains an obscure subject, as two diametrical opposite opinions are held as to its cause:

1. That an abnormal vessel wall allows normal blood to escape through it.

2. Abnormal blood because of its abnormality is able to pass through a normal vessel wall.

The arguments in favor of either supposition are not as yet convincing, although the preponderance of evidence seems to be in favor of the latter view; that something which causes the blood to coagulate is missing. In the cases tested there seems to be a diminution in the number of platelets, and in the first case we were able to foretell an outbreak of purpura by the diminution of platelets. The coagulation time has been quite variable, 3-10 minutes up to 40 seconds in cases which seemed to be clinically the same.

The mortality was quite high when the older methods of treatment were in vogue. The combined statistics of Schloss, Commiskey, Vassmer and Shukowsky show a mortality of 50.3%. According to Vincent, taking all forms of the disease, probably 60% represents the average mortality.

The older methods consisted of the use of various therapeutic agents, *i.e.*, adrenalin, calcium chloride and lactate, tannic acid preparations, ferric preparations and gelatin. These agents were on the whole quite disappointing, although gelatin has been highly recommended by German writers and has been widely used in Europe. Vassmer reports 34 cases of melena neonatorum treated with gelatin, with a mortality of 8.8%.

NEWER METHODS OF TREATMENT.

The method of blood transfusion was introduced and was employed by Lambert, Carrell and Brewer in 1909. Lespinasse and Fischer in 1911, with their own cases and others, collected in the literature, reported a total of six cases with a mortality of 33 1-3%. Vincent, in 1912, reported 11 cases, 8 of which were successful. Bernheim had one successful case. He devised two metal tubes, one of which is inserted into the vein of the recipient and the other into the artery of the donor. When both are in place they are united. This method and that of Vincent with the glass tubes, makes the technic easier because it allows more room between the two patients. Vincent has made one improvement over the technic of others in the use of the external jugular vein, as it is the largest of the superficial veins in the baby.

There were also various modifications of the direct transfusion method as practiced by Kimpton, Lindeman and Vaughn.

A second treatment that came into vogue was the injection of animal serum. This was first suggested by the work of Weil on hemophilia. The serum was generally obtained either from a horse or a rabbit. The amount used was 10 c.c. up to as high as 100 c.c. at a time and repeated. Leary, Bigelow and others used it with fair success. This treatment was not confined to the hemorrhagic diseases of children, but was utilized in various conditions, such as tonsillar hemorrhage, uncontrollable bleeding from jaundice, hematemesis and even hemoptysis.

The third method was the use of human instead of other varieties of serum. Welch, in the *American Journal of Medical Science* for 1910, first brought out this idea. He reported 13 cases, all of which he cured this way. Last year he reported 32 cases; some of which were hemorrhagic cases, others were just septic, in which he used normal blood serum with what he called brilliant results. He gives no detail report of the cases nor of the per cent. cured. In conclusion he states, "Of other conditions in which I have had experience in the use of human serum, the various bleeding conditions rank first, and of these, more especially the hemorrhagic condition of the new born."

In considering the use of sera or blood transfusion, four points were impressed upon me:

1. Dexterity required as in a transfusion. Men have to be specially trained in the surgery of blood vessels to do this.

2. Danger, as from thrombosis.

3. How did we know that just the elements of the serum were missing?

4. Various articles are necessary to do a transfusion or even in the use of sera.

METHOD EMPLOYED.

To obviate the drawbacks mentioned above, I have employed the so-called injection of whole human blood. Schloss and Commiskey, in two articles during 1911-1912, reported nine cases with a cure of seven. Myers, of Wisconsin, had two cured cases. I took up this method about two years ago, starting in the pediatrical clinic of the Hartford Hospital, and up to date have had thirteen cases.

Of all the methods which have been advocated in the treatment of hemorrhagic diseases, this one is by far the simplest. The only apparatus needed is a syringe, needle and a piece of strong flexible rubber. The latter is not absolutely necessary. The syringe should hold at least 10 c.c., preferable 20 c.c. of fluid. Those made

entirely of glass are better because in these the blood is less likely to clot. The needle which has given the best results is a medium size aspirating needle. The piece of rubber joins the needle to the syringe and allows play between them, so that if the child squirms around, the needle is less likely to break off or injure the child.

The areas from which the blood is taken and where it is injected, must first be carefully sterilized. The blood is drawn from the basilic vein at the elbow, preferably from the father or some male relative, although on several occasions it has been taken from the mother as she lay in bed. It is then injected into the buttocks or back of the infant. The amount used is from 10 to 20 c.c., and is to be repeated in 4 to 6 hours if the hemorrhage is severe or if there are any signs of new bleeding. I always repeat it if purpura is present.

I will now briefly cite my thirteen cases:

Case 1. A. R. Admitted to Hartford Hospital on October 8, 1911.

Complaint. Swollen face and loose bowels.

June 1, 1912. A summary of this case shows numerous attacks of purpura, a continued emaciated condition complicated by pneumonia, double otitis media, perineal abscess, varying periods of general edema, rhinitis and at times the child has been in a critical condition.

Because of his hemorrhagic condition, 20 cc. of father's whole blood were injected into the patient's buttocks.

June 17. Because of another slight outbreak of purpura, 20 cc. more of father's blood were injected.

July 1. Child has gained steadily in all respects, but because of one small purpuric spot on the right thigh, 20 cc. of blood were again injected.

August 15. No more purpuric outbreaks, child has gained steadily, is able to walk and was discharged well.

Case 2. C. P. Age 4. Came to my office for severe nosebleeds and spots over body. For two and one-half years has been subject to outbreaks of purpura and severe nosebleeds. This has been getting worse and last week the patient had an outbreak every day. Mother states that the bleeding is so severe that the child faints. On examination no ulcer was found in the nose, but the child was very anemic and purpuric spots were present on the left thigh and right leg.

15 cc. of father's blood were injected. Bleeding stopped immediately. In a week, two drops appeared at the nostril. 15 cc. of father's blood were again injected.

Feb. 15, 1913. Child was lost sight of. Since last note, the child has had one attack of nosebleed, but the father refused to have it treated any more.

Case 3. Baby Oliver, 6 weeks of age. For past three weeks has had bleeding from nose, gums and rectum. During the past two days, there has been bleeding from the cord and into the brain and orbital cavities. Examination shows a comatose child, fontanelles very tense, marked protrusion of right eye ball and bleeding from gums, navel, nose and rectum. Purpuric spots over rectum, thighs and upper extremities. Child practically moribund. Twenty cc. of father's blood were injected. Child died in four hours.

Case 4. Mary R., 3 weeks old. Came to my office Sept. 1, 1912.

Complaint. Bleeding. Mother stated that the child had bloody stools for about three days. On examining child, it had a rather free discharge of bright blood from the rectum. The rest of the examination was negative except for anemia. Hemoglobin 65 per cent. Coagulation time, 10 minutes.

Twenty cc. of mother's blood were injected into child's buttocks.

Child made an immediate recovery, gained steadily in weight and never had any more bleeding.

Case 5. Lillian W. Entered Hartford Hospital on November 22, 1912. Age 2 months. Past history negative.

P. I. One week ago baby began vomiting after feeding, sometimes curds and at other times liquids. Baby has been nursed every time she cried, either from breast or Eagle Brand Condensed Milk. Bowels irregular, at times 2 to 5 movements a day, green, watery, with some curds and mucus. Child has lost about one and one-half pounds since birth.

Examination. Crusts on scalp. Pharynx, chest and abdomen negative. Small umbilical hernia, recents loss of weight, skin clear.

Nov. 26, 1912. This infant has not been doing well. At first, while it took its feedings yesterday it had renewed vomiting and whereas there were noticed some bright blood clots in the stools on the 23d; to-day there is considerable bright blood in the faecal discharge and the child's general state is much depressed. Rectal examination, including an abdominal palpation, fails to reveal any cause for bleeding.

Ten cc. of father's blood were injected into child's back. Bleeding was immediately controlled.

Jan. 4, 1913. There has been no further bleeding and the infant has continued to improve and has gained two and one-half pounds. It is now on a milk formula and with the exception of slight eczema of the right ear, creases in neck and groin, there are no further abnormal developments.

Case 6. Baby B., 3 days old. Seen in Wallingford, Conn.

No bleeders in family. On second day after birth, diapers were red and again on that night there was slight bleeding from one nostril. No other foci of hemorrhage.

Examination. Well developed child. Blood clot in left ear and right nostril. Active bleeding from vagina and navel. Slight purpuric hue to entire skin.

Eighteen cc. of whole blood from paternal uncle were injected into child's buttocks. Blood was taken from the uncle because the father had been in poor condition. Bleeding immediately stopped and child has had no recurrence.

Case 7. Peter F. Admitted to Hartford Hospital on Feb. 23, 1913.

Complaint. Hemorrhages from nose.

Born November 16, 1912, full term, normal delivery. Weight, 9 pounds. Always breast-fed. Always well until present illness. Three days ago child had nosebleed from left side. Some was swallowed and a clot 1½ in. x ½ in. was vomited, also some very dark vomitus. Black stools for two days,

but no more vomiting. Stools were better yesterday and to-day, O.K. (yellow). Child did not nurse well this morning.

Father living (recovering from an operation). Mother living and well. No bleeders. One other child, O. K.

Feb. 23, 1913. Eight c.c. of serum from mother injected into child's buttocks.

Feb. 24. This infant is in a precarious state, somewhat stupid, right external strabismus. Tense fontanelle, peculiar pallor, semi-tonic state. Throat, chest and abdomen negative. There are no purpuric spots present, although on the right knee the skin is a little dusky.

Feb. 24, 5 p.m. Because of the precarious condition and duskiness of skin, 10 c.c. of whole blood from father were injected into the buttocks of the child.

Feb. 25. There is a slight increase in the intercranial pressure this morning. Fontanelle more tense. Eyes held in a staring, inattentive gaze, and except when the child is aroused, it remains in a semi-conscious state in which the eyes are partly open. There still remains the tonic state of the musculature. On the other hand, a stool just passed contains no blood.

Feb. 26. There has been no further evidence of hemorrhage. The fontanelle is the same as yesterday. The tonicity is a little less and the child responds to external stimuli; but when left, it returns to its semi-stupid condition in which the eyes still tend to be fixed, but less so than formerly.

March 1. The baby is less stupid today. Its pupils respond readily. There is still a little internal strabismus. The neck is a little stiff and the fontanelle tense, but less so than yesterday.

March 16. The improvement has been very rapid and satisfactory and today there is no evidence of intracranial pressure. Child is clear in its mind and improved in nutrition. It is on a milk formula supplemented by breast feedings. General physical examination negative.

CASE 8. Joseph P. Admitted to Hartford Hospital on March 20, 1913. Age 20 months.

Complaint. Severe epistaxis on March 17, 18 and 20.

Family History. Father and mother well. No other children. Mother 22½ years old; has had considerable epistaxis during the hot weather for the past few years, but not as a child. No known tendency to hemorrhage on maternal or paternal side of family.

Past History. Child born at full term, normal labor, well developed. Breast fed for 14 months. Since then it gets "everything." Bowels move normally, stools are soft, yellow, no curds. No vomiting except when taking breast feedings too quickly in early infancy. Always well up to present illness.

Present Illness. March 17, at 4.30 p.m., while in mother's arms, child's nose began bleeding quite profusely, lasting 55 minutes. Stopped by cold water compresses on neck.

March 18 at 2 a.m., began to bleed profusely from nose. Mother could not stop the hemorrhage and a doctor was called. The hemorrhage continued intermittently until 1 p.m. Baby then looked weak and pale.

March 20, at 2 a.m. began to bleed again and lasted until 6 a.m., stopped spontaneously. Two dark, bloody stools. Question of bloood from right ear today (March 20).

This infant presents three prominent symptoms: First, as regards it skin; it is unduly pale and the child's face, particularly the upper lip, is puffy. There are purpuric areas on the lower extremities from the knee down.

Secondly, there is evidence of recent hemorrhage from the left nostril. On the other hand, the post-pharyngeal examination reveals no blood. Thirdly, the child presents a peculiar, weak and dyspneic condition, there being no chest findings to account for it. In addition, it has a slight cough. Throat, chest and abdomen negative. Phimosis present. Child tends to lie in an exhausted and semi-stuporous condition after having been examined.

March 20, at 2 p.m., 19 c.c. of father's blood were injected into child's left buttock.

March 20, at 8 p. m., 25 c.c. of father's blood were injected into right lower back.

March 21. Small petechiae are present on legs and feet and a few on the forearms. The area over the right knee is increased and a new one has appeared over the left ilium. Generally the boy is better. The breathing is less labored, although abnormal still, and the child is a little brighter.

March 21, at 2.15 p.m., 20 c.c. of father's blood were injected into right buttock.

March 21, at 8 p.m., 20 c.c. of father's blood injected into back.

March 31. Purpuric condition has entirely cleared up.

CASE 9. S. A. G. Seen March 20, 1913. Three days old. Day after birth a right-sided cephalohematoma was noticed and dark blood in mouth, and there began to slowly appear purpuric spots over the backs of the hands and both lower legs. Forty-eight hours after birth, the child vomited dark blood, and stools looked darker than normal. Examination shows a moderate sized right sided cephalohematoma, purpuric spots on back of left hand, over both lower legs and right shoulder. Ten c.c. of whole blood from father were injected into the child. Child had a very dark stool while this was being done. Next day it appeared quite well, nursed well and stools were normal. Because of a new spot, 10 c.c. of whole blood again injected. Not seen the next day.

March 26. Child again seen. Very stupid and refuses to nurse. Several new spots have appeared. Ten c.c. of blood again injected.

Child gradually failed and died the next day. (Attending physician's note.)

CASE 10. July 15, 1913. R. T., 7 weeks old. Poorly nourished. Vomited almost everything for about four days. During last two days purpuric spots have appeared over abdomen and bright blood has been passed per rectum. Twenty c.c. of whole blood taken from a nurse and injected into child's buttocks.

July 22. Bleeding has stopped and child is gaining weight on a milk formula.

CASE 11. Seen at St. Francis' Hospital, Sept. 14, 1913. Three days old. Bleeding from ears, mouth and nose. Forceps case. At first it was thought that the bleeding was due to this, but when I saw the case, the bleeding was from other places. Child was in a very critical condition.

Twenty c.c. of father's blood injected into child's thigh. Child grew steadily worse and died in two hours.

CASE 12. Mrs. W. W. C. Age 38. Two months pregnant. Because of poor physical condition it was deemed necessary to abort. This was done. She bled profusely, and inside of four days was packed and repacked eleven times, with no apparent good result. At this point 20 c.c. of her husband's blood were injected into her buttocks. In two hours the packing was removed with no bleeding. She has not bled since then.

CASE 13. December 24, 1913. R. P. Age 8 days. Three days ago, impetigo began to appear over body and there was bleeding from the rectum, navel and left ear. Bleeding had been increasing and because of this, 20 c.c. of the father's blood were injected into the child's buttocks.

Dec. 25. All bleeding had stopped, except a little from the rectum.

Jan. 1, 1914. No more bleeding, impetigo better.

MORTALITY.

In this series of 13 cases which have just been reported, there were 3 deaths, or a mortality of 23%. If we take the combined statistics in the literature of the cases so far reported, that have been treated by this method, we find that there were 5 deaths in 24 cases, making a mortality of 21%. The four cases reported by Vincent are not included, because as he states, "I did not use the method as recommended, and consequently these cases are not a fair test."

The transfusion method, taking the combined statistics of Lambert, Carrell, Brewer, Bernheim and Vincent, shows a mortality of 29%.

The mortality of cases in which human sera were used cannot be given exactly, because the writers on this subject did not give their cases in detail.

If recognized and treated, these cases do not, as a rule, die from the loss of blood, but from the mechanical effect of the hemorrhage into some vital organ. In concluding, I would like to impress upon your minds the following three salient facts in favor of the injection of whole human blood in the treatment of hemorrhagic diseases:—

1. Simplicity of employment.
2. Efficaciousness.
3. Lack of danger to either recipient or donor.

So it seems to me that we now have within the scope of every practitioner, a method to combat more successfully this heretofore rather fatal disease.

In conclusion, I wish to thank those doctors who permitted me to see some of these cases and especially Dr. Charles A. Goodrich for his helpful aid and suggestions.

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A CASE OF FRACTURE OF THE CARPAL CUNEIFORM BONE.

BY WM. PEARCE COUES, M.D., BOSTON.

Isolated fracture of the carpal cuneiform is of extremely rare occurrence. The special fracture text books make mention of the possibility of its occurrence without citing cases as a rule; and general surgical works make no mention of it in their pages. Fracture of the carpal scaphoid and dislocation of the semilunar quite naturally, on account of the frequency of these injuries, have been carefully studied and described even since the advent of the x-ray.

History of Case: Miss F. L., 23 years, was seen Nov. 11, 1913. The history was as follows: While doing gymnasium work, she met with the injury which we describe.

Aug. 16, 1913, while standing on the hands she turned too far, lost her balance, fell to the ground, rolled over on her left hand. The hand was flat, extended on the ground. Immediate pain was felt in the wrist and she was unable to use the hand afterward. She says she felt crepitus at this time. The next day the hand was very lame and there was ecchymosis over the dorsum of the hand, which lasted a week or more. Monday, she consulted a physician who thought there was no fracture. The hand was bandaged and liniment prescribed. Ever since then there has been disability, felt most in rotation of the wrist or extension of the hand. Pain on extension is most marked over the second metacarpal. The pain was constant at first; then only when attempting to do her work, but there has been no time when she has been able to do her gymnasium work without pain. Of late, numbness of the hand and arm was felt.

Examination. Well-developed, active, rather slight young woman. Examination of the wrist



Fracture of Carpal Cuneiform.
November, 1913.



Fracture of Carpal Cuneiform.
January, 1914.

showed the following: There was no obvious swelling or ecchymosis noted in the region of the cuneiform. Flexion and extension of the wrist is slightly painful in the region of the cueiform bone. There is very slight pain in adduction of the wrist; in active abduction there is more pain. Forced passive abduction of the wrist causes great pain in the region of the cuneiform. Flexion and extension of the fingers is not painful. Rotation of the forearm causes pain in the wrist in the region of the cuneiform and slightly lower. There is a very slight synovitis of the middle extensor tendon, showing at the middle of the back of the hand. When the patient picks up a weight or turns a door knob the pain is felt in the wrist in the cuneiform region. Direct pressure over the cuneiform is very painful; but no crepitus is elicited. Lateral pressure across the wrist in such a manner as to make the pisiform press upon the cuneiform bone, causes much pain. The x-ray showed a fracture of the carpal cuneiform incomplete, running from the ulna side about half way across the bone obliquely. Hand immobilized on palmar splint with pad and strapping over the cuneiform. There was considerable relief experienced after the hand had been immoblized for a few days; and from this time, there was progressive improvement which, however, was slow. Two weeks after the first radiograph, a second was taken which showed no union of the crack. Another radiograph was taken in another two weeks, after fixation for about one month, which still showed no bony union; though the pain and disability were much less. The next radiograph, taken in about ten days, showed considerable union. At this time the splint was removed and the hand bandaged. Examination showed at this time practically no tenderness over the cuneiform, no thickening, and movements of the wrist were executed without pain. Picture taken the middle of January, 1914, nearly two months after the first picture showed union practically complete. A faint line could still be seen. Since this time patient has been using the hand cautiously without trouble or pain of any sort and examination shows practically no more tenderness over the cuneiform of this wrist than of the uninjured wrist.

Interesting points in the case are: The length of time of the disability and pain, without recognition of the nature of the trouble, and the somewhat long period of fixation necessary before union and a cure was effected. This undoubtedly was due to the length of time that the patient had attempted work with the hand, with the fracture still ununited.

Medical Progress.

PROGRESS IN MEDICINE:—RECENT ADVANCES IN CERTAIN BLOOD DISEASES.

BY ROGER I. LEE, M.D., BOSTON.

PRIMARY PERNICIOUS ANAEMIA.

ONE of the many theories of the etiology of pernicious anemia has been that some hemolytic substance is elaborated in the intestinal tract perhaps from the mucous membranes or from some of the fatty acids. McPhedran[1] in a careful study of the hemolytic properties of fatty acids and their possible relations to the causation of toxic hemolysis and pernicious anaemia concluded that hemolysis by liberation of specially hemolytic fatty acids from the fatty complexes of disintegrating cells is not supported by evidence. None of the fatty acids were more toxin than the common oleic acid. Ewald and Friedberger[2] found no hemolytic substance from the mucous membranes of cases of pernicious anaemia.

Splenectomy in Pernicious Anaemia. A certain amount of evidence has been introduced by Banti,[3] Eppinger[4] and others, tending to show

that in pernicious anaemia there is increased hemolytic activity of the spleen. One result of the introduction of this evidence has been the removal of the spleen in certain cases of pernicious anaemia. Eppinger reports seven cases. Klemperer[5] reports ten cases, Mosse,[6] Huber[7] and others, report isolated cases of splenectomy in pernicious anaemia. Most of the cases were reported as improved after splenectomy. In Klemperer's series of ten cases there were two deaths; eight were benefited with one clinical cure.

Splenectomy in pernicious anaemia certainly has some basis on theoretical grounds. On the other hand—the case reports while showing uniformly considerable improvement, fail to arouse much enthusiasm. It is of course too early to pass critical judgment on any therapeutic measure in a disease that runs such a bizarre course as pernicious anaemia.

Salvarsan in Pernicious Anaemia. Inasmuch as arsenic has been advocated for so many years in pernicious anaemia, it is not remarkable that the literature contains some reference to the use of salvarsan in this disease. Boggs,[8] Bramwell[9] and a few others report remarkable improvement in the blood picture of pernicious anaemia shortly after the use of salvarsan. Their favorable experience has not been widely confirmed.

Transfusion in Pernicious Anaemia. Vogel and McCurdy[10] have studied the effect of blood transfusion and regeneration in pernicious anaemia. They give an extensive bibliography. They advise the repeated intravenous administration of rather small measured amounts of blood.

Weber[11] has advised the repeated intramuscular injection of fresh blood in small amounts for all forms of severe anaemia.

Radium in Pernicious Anaemia. Radium has been advocated as a therapeutic agent in all forms of blood diseases including pernicious anaemia. The literature on the subject of the therapeutic use of radium is very confusing. Radium in the form of thorium-x had at first many enthusiastic advocates. Of late, particularly in pernicious anaemia there is a tendency to urge caution in the use of radium preparations and many unsuccessful cases are reported. Meseth[12] gives a resumé of the literature and reports two personal cases of pernicious anaemia unaffected by thorium-x. v. Benczur[13] thinks that pernicious anaemia is favorably influenced by thorium-x which seems to him more effective than arsenic. The only safe conclusion from the evidence to date is that the radium preparations especially thorium-x are not harmless agents in the treatment of pernicious anaemia and that improvement is not the rule and even reported cure is rare.

Splenic Anaemia. The literature continues to be crowded with case reports of splenic anaemia. Most of these cases have been operated and are recorded as clinical cures after splenectomy. The fact now seems established that cases of anaemia and splenomegaly without apparent cause are usually cured by splenectomy. Giffin[14] from the Mayo clinic reports clinical observations on 27 cases of splenectomy. Splenectomy was done in 18 cases of splenic anaemia. Erdmann and Moorehead[15] in discussing the subject of splenomegaly (Gaucher type) review the mortality of splenectomy for various conditions. They believe that the mortality with the present surgical technic should not be over 10%. Erdmann and Moorhead give a good bibliography of splenomegaly (Gaucher type) and report two cases of their own. Splenectomy was done in one case with apparent cure.

Confusion still exists as to the classification and interrelationship of the various anaemias with enlarged spleens. A large number of cases of splenic anaemia of the congenital family type with hemolytic jaundice have been described. Some of the cases of hemolytic jaundice certainly occur as a family group. In others no family history can be obtained.

Haematogenous Jaundice. Richards and Johnson[16] and many others report carefully studied cases with jaundice, splenomegaly, lowered osmotic resistance of the red cells, anaemia with typical staining reaction of the red corpuscles, and urobilinuria. A number of cases of apparent cures in this condition are reported following splenectomy. All the writers, however, point out the fact that the patients with this condition seem very little troubled with it and splenectomy seems a rather radical therapeutic measure for a disease that interferes but slightly with the patient's activity.

In so-called Banti's disease splenectomy is advised by Banti[3] himself and a number of apparent cures are reported after splenectomy. Klemperer and Hirschfeld[4] report one case of splenomegaly and anaemia that developed polycythaemia after splenectomy.

Pearce[17] and his co-workers in Philadelphia have studied experimentally in animals the relation of the spleen to blood destruction and regeneration and to hemolytic jaundice. They have found that the increased resistance of the red blood corpuscles characteristic of splenectomized animals persists for a least a year. There is also a decreased tendency to jaundice after the administration of hemolytic sera.

It seems to be the tendency to support the general supposition that these diseases called clinically "splenic anaemia," "family jaundice" and "Banti's disease," are all primary blood diseases but apparently with the active hemolytic agent in the spleen. The number of cures reported after splenectomy in these various conditions is too great to allow any other assumption than that the abnormal process is situated in the spleen.

Gibson's[18] recent report on the possible infectious etiology of certain of these conditions is of particular interest. Gibson finds that "in the spleens of six cases, three with the picture

of Banti's disease, two with splenic enlargement and fibrosis and one with splenomegaly there was found by a special method of staining an appearance which can be interpreted only as a parasitic invasion of the organ by a streptothrix organism this being in such a relation to the affected parts, at least in the cases of Banti's disease as to leave no doubt that they are the cause of pathological conditions. Many other spleens examined with the same object in view showed no such appearances." Gibson's work of course points to the infectious nature of certain cases of splenomegaly and Banti's disease. This work naturally awaits confirmation.

Leukaemia. The conflict is still waged concerning the classification of the various forms of leukaemia. Herxheimer[19] in a comprehensive article with an excellent bibliography gives an admirable review of the classification of leukaemia. By means of the so-called oxydase reaction, which is positive in all cells of the myelocyte series and negative in all cells of the lymphocyte series, an adequate means of differentiation seems to have been obtained. Herxheimer reports typical cases of the so-called lymphatic leukaemia and myelogenous leukemia and gives illustrative cases also of leukaemias with cells much less differentiated than the typical lymphocyte and the typical myelocyte which are classified as lymphoblasten-leukaemia and myelo-blasten-leukaemia. He reports one case which seems to have been a true mixed type in one person. The evidence is slowly accumulating that acute myelogenous leukaemia once considered rare is relatively common. Burgess[20] in his study of leukaemia using the oxydase reaction believes that acute leukaemia is usually myelogenous.

Steele[21] reports the finding of a diphtheroid bacillus in a gland from a case of lymphatic leukemia, apparently identical with that found by himself, Negri and Miermet,[22] Bunting and Yates, Billings and Rosenow in Hodgkin's disease. The well known wide distribution of diphtheroid bacilli renders further confirmation of this finding in lymphatic leukaemia as well as in Hodgkin's disease very essential.

The therapeutics of leukemia can be classified under three groups, x-ray, radium preparations and benzol.

X-Ray in Leukaemia. It has been well established that x-ray treatment improves the blood picture and the symptoms and favorably modifies the course of certain cases of chronic leukaemia. Béclère and Béclère[23] report the results of the x-ray treatment of 110 cases of leukaemia since June, 1904. Their 12 cases of lymphatic leukaemia, one of which has been observed for five years, were all improved. Their 93 cases of myelogenous leukaemia were much less favorably affected. There was no effect in the five acute cases. Cumberbatch[26] reports a fatal leukopenia following 111 days of x-ray treatment of a case of myelogenous leukaemia. The white count fell from 691,000 to 850. The differential count was not essentially altered. Warthin[27] studied the minute changes produced in leukaemic tissues by exposure to the Roentgen rays. In none of his cases were the conditions of the haematopoietic organs changed to normal. The effect of the treatment was degenerative and inhibitive but not curative as the essential process seemed to progress unchecked.

Radium in Leukaemia. As in the case of pernicious anaemia extravagant claims have been made for the therapeutic value of radium and its preparations in all forms of leukaemia. Thorium-x has been the preparation usually employed. Rosenow[28] in a critical review concludes that thorium-x has not been of the value in the treatment of leukaemia that it was once considered. Thorium-x often benefits but accomplishes no more than the x-ray and often fails. Meseth[17] reports improvement in three cases of myelogenous leukaemia and apparent cure in one case. Thorium-x was unsuccessful in cases of lymphatic leukaemia. Klemperer and Hirschfeld[29] review the present state of the thorium-x treatment. It is not possible to summarize the extensive and conflicting literature on the subject. It would seem fair to state that certain radium preparations, particularly thorium-x, favorably influence the blood picture and symptoms of certain cases of leukaemia. Cure apparently does not follow or at least is very rare.

Benzol in Leukaemia. v. Koranyi[30] in 1912 first used benzol as a therapeutic agent in leukaemia. He based the justification of his use on some clinical and experimental studies of Selling[31] of Baltimore who in 1910 reported three cases of benzol poisoning with blood destruction. Selling also showed the destructive effect of benzol on the blood in experimental work on animals. Other experimental evidence of the effect of benzol on the blood picture has been reported by Santesson[32] in 1897 and others. v. Koranyi and his assistant Királyfi[33] showed that the administration of daily doses of three to four g. of benzol, preferably given with equal parts of olive oil in capsules had usually a remarkable effect on the blood picture and symptoms in chronic leukaemia. After an initial rise in the white count, diminution in the white count begins after two or three weeks. This diminution is at first slow and then rapid. The red corpusceles are at first stationary but usually increase. The spleen and the glands become smaller. Patients who have had previous x-ray treatment seem to do better. v. Koranyi and Királyfi insist on the necessity of large doses. Gastro-intestinal irritation occurs in some cases. The treatment must be carefully controlled by the blood examination as leukopenia may be accompanied by general blood destruction and death. Since these initial reports, many cases of leukaemia treated with benzol have appeared in the literature. The

large majority of these cases were favorably influenced by benzol. A few cures are claimed. In this country Billings[34] of Chicago and Barker and Gibbes[35] of Baltimore have reported series of cases. v. Boltenstern[36] has recently reviewed the literature to date and gives 38 of the more important references. His conclusions are sound. He believes that benzol improves cases of leukaemia symptomatically, reduces the high white count but without curing the disease. He believes that at this early date no conclusive judgment can be passed on the value of this form of therapy. Several observers while reporting great improvement and reduction to normal of the white count have emphasized the striking fact that in the favorable cases with low white counts after benzol treatment the proportion of leucocytes are but little altered. The disease is still manifest by the relative increase of the abnormal blood constituents. Fatal cases after treatment with benzol have been reported by Neumann,[37] Jespersen,[38] Mühlmann,[39] Sohn[40] and others. In Neumann's case of myelogenous leukaemia the leucocytes fell from 56,000 to 200 before death. Jespersen and Mühlmann both report cases which relapsed and died after apparent cure. The autopsy of these fatal cases showed uniformly the extensive liver necrosis that is also found in animals experimentally poisoned by benzol. Sohn and Billings refer to the fact that with the reduction of the white count there is no coincident increase in the uric acid excretion. Sohn studied carefully the metabolism of a case of myelogenous leukaemia treated with benzol and found no increased uric acid output. This finding is difficult to explain on the assumption that benzol destroys the myelocytes. His interpretation is that there is a leukopenia in the cirulating blood and a hyperleucocytosis in the internal organs. It seems generally agreed that the acute cases are not affected by benzol. Krokiewicz[41] and others report cases of leukaemia entirely unaffected by benzol.

The present status of the problem would seem to be that cases of chronic leukaemia can often be favorably affected in regard to their symptoms and blood pictures by the Roentgen ray, by radium preparations and by benzol. The administration of all these therapeutic measures if pushed may result fatally. Leukopenia is to be avoided. Probably none of these measures really cure the disease. Benzol which is given by mouth has the great advantage of simplicity of administration. The results of benzol treatment appear to be more rapid, and more striking. The dangers would also seem to be greater.

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Book Reviews.

Essentials of Bacteriology. By M. V. Ball, M.D. Seventh edition, thoroughly revised. With 118 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company. 1913.

The first edition of this manual (No. 20 in the series of Saunders' Question Compendia) was reviewed in the issue of the Journal for Sept. 15, 1892 (Vol. cxxvii, p. 270). Since that time the first part of the book, on general bacteriology, has been considerably amplified. This seventh edition has been completely revised, and many chapters have been entirely rewritten. Those on immunity and infection have been edited by Dr. Paul G. Weston, who also contributed the article on the Wassermann reaction. There is at the end a very useful table of the chief characteristics of the principal bacteria. The book aims to be "a concise and systematic introduction to the study of bacteria and allied microörganisms," and seems now to fulfil this purpose as well as is practicable for a work of its size.

THE BOSTON

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THE GOVERNOR'S MESSAGE ON THE UNPAID BOARDS.

THE Governor's recent message, based on the report of the Commission on Economy and Efficiency as embodied in House Bill No. 2137, prescribes a radical change in the administrative system of dealing with the sick, the delinquent, and the poor in our state institutions. For many years Massachusetts has committed herself to the policy of unpaid boards of trustees in handling these problems. It is fair to presume that a part at least of the efficiency of these institutions, which has made the State a model for others all over the Union, is due to this system and to the class of men and women who have served willingly and without pay on these boards. To sweep away this entire fabric, which it has taken so many years to build up and which, while it doubtless can be improved in many ways, has shown its worth, and to replace it with a system almost revolutionary in nature, is a proposition which deserves the most serious consideration by the medical profession.

Briefly, the new plan as proposed by the Economy and Efficiency Commission, provides for the abolition of the State boards of charity and insanity, the prison commission, the four boards of parole, the commission on probation, the commission for the blind, and the boards of trustees of the following institutions: the four state sanatoria for consumptives, the eight state hospitals and asylums for the insane, the two schools for feeble-minded, the hospitals for epileptics, the hospital cottages for children, the two institutions for inebriates, the state infirmary and the state farm, the three state training schools for children, and the hospital school for crippled children. The inmates of all these institutions number about 22,000. The powers and duties of all these boards and commissions are to be vested in a single paid board of five. This board may appoint a "director of public institutions" who is to have immediate charge of the proper execution of the board's policies. This director, in turn, may appoint four executive secretaries to whom he may delegate such of his powers as he sees fit, as well as a business agent, who is to attend to the buying and distribution of supplies, etc. The bill also provides for the appointment by the Governor of boards of three visitors each, to the several institutions, who will have power to investigate, hear complaints, and to report.

This bill, as explained in detail in the report of the Commission on Economy and Efficiency, aims to remedy certain defects which are supposed to exist in the present system. Among such defects are: a conflict and multiplicity of duties at present assigned to superintendents, defects in methods of accounting, variation in cost per patient and number of patients per employee in institutions of the same class, and a lack of uniformity in organization of departments, business methods, and construction of buildings. Besides remedying these defects, the new system aims to bring about centralizing of authority, closer supervision of work actually done, and economy in obtaining supplies by means of a central purchasing agency.

While to a greater or less degree certain of the defects above mentioned may exist under our present system and should and doubtless will be remedied, there are certain very evident advantages which result from a system of unpaid boards which are not mentioned in the report of the Economy and Efficiency Commission, and which find no place in what they propose to substitute.

Chief among the merits of our present arrangement is the high class of men and women who give their services to the state—men and women, many of whom are experts in their line, and who from disinterested motives and with the one aim to render service to the state, are spending tremendous amounts of time, energy, thought, and labor to this end. To do away with

all this, to annul the personal and humanitarian side of such service, would be a foolhardy and dangerous step. To replace such a system by one which has not proved its worth or stood the test of time and which opens the way for political influences of any kind would be still worse. During the last five years of his life, the late Dr. Arthur Tracy Cabot gave willingly and freely from the deep store of his wisdom and experience, practically all of his time and energy for the cause of stamping out tuberculosis and aiding consumptives in this state. Massachusetts can ill afford to discard one system and inaugurate another which will permanently deprive the state of such services as these.

GROWTH AND NEEDS OF DISPENSARY WORK.

A REMARKABLE development of dispensary service in this country is attested by the Report just issued by the United States Census Bureau. Five hundred and seventy-four dispensaries and out-patient departments are recorded in this publication, representing an increase of 370%, as compared with the 156 dispensaries which were listed* in a similar report issued by the same Bureau in 1904. The number of dispensary patients treated in 1910 is said to be 2,440,018, a figure which is undoubtedly too low, but even this is 50% above the number recorded six years before. The census list of dispensaries omits, for some reason, several institutions of importance, among which the large out-patient department of the Boston City Hospital may be mentioned. It is probable that during 1913 at least 3,000,000 persons received treatment at dispensaries in this country, excluding the commercial dispensaries.

In 1904 the hospitals received 87 patients per 100,000 population of the United States, and in 1910 the proportion per 100,000 had risen to 107, an increase of 23%. Dispensaries and out-patient departments have grown much faster than hospitals, the number of which, between 1904 and 1910, increased only 28%, and the proportion of hospital patients per 100,000 population increased 23%. Dispensary patients per 100,000 population, however, increased from 1982, in 1904, to 2711 in 1910, or 36%.

* The 1904 figures are probably too low, 200 being a more likely figure. This would make the increase, in 1910, 287%.

The following classification suggests some of the varied causes of this rapid growth:

General dispensaries receiving more than 1000 patients a year	291
General dispensaries receiving less than 1000 patients a year	62
Dispensaries for tuberculosis only	167
Other dispensaries for special diseases (eye, ear, nose and throat, gynecological, etc.)	53
Dispensaries not in operation in 1910	1
Total dispensaries in the United States in 1910	574

It will be seen that 167 dispensaries have been established as part of the anti-tuberculosis campaign, and about nine-tenths of these began work between 1904 and 1910, the larger number in Pennsylvania under a state law. But the tuberculosis dispensaries do not account for more than a fraction of the growth between 1904 and 1910. The general dispensaries of the larger type increased during that period more than 200%.

The distribution of the dispensaries is very interesting. Seventy-nine per cent. of the total number of patients treated were in New York, Pennsylvania, Massachusetts and Illinois, and 10% more were in the four additional states of Maryland, New Jersey, Ohio and Missouri. Thus, 89% of the two and a half million patients recorded for 1910 were in 8 of the 48 states. On the other hand, the dispensaries are widely scattered, there being only 8 states in which there are no dispensaries. (In 1904, 27 states had no dispensaries.) While dispensaries have blossomed most freely in the largest cities, such as New York, Philadelphia, Boston, Chicago, Baltimore, Cleveland and St. Louis, their establishment in communities of moderate size is one of the striking features shown by the Census Report.

Other interesting items appear from a study of the expenses. The amount appropriated for dispensary work from public treasuries, mostly municipal, was $23,501 during 1904, and $217,192, or nearly ten times as much, during 1910. While many inaccuracies might be pointed out in the report of the Census Bureau, the larger part are evidently due not so much to inefficiency in Uncle Sam's service as to the inability of dispensaries and out-patient departments of hospitals to furnish the information desired. Nearly two-thirds of the institutions treating 1,000 or more patients a year do not make a financial report showing the expen-

ditures of the dispensary or out-patient department. Most hospitals do not keep their accounts so that the expenses of the out-patient department can be stated separately. This is true even of some of the leading institutions of the country. Only 191 dispensaries reported their expenses for 1910, the total being $1,593,140, a surprising figure in view of the fact that most of the large out-patient departments do not report.

There can be no doubt that dispensary service meets a real demand, which has thus far been manifested chiefly in the larger centres of population. The lack of adequate medical service in many middle-sized industrial communities which have little in the way of hospital provision, and few of the specialists demanded by modern medicine, is coming more and more to the attention of those interested in public health. In such communities, the establishment of dispensaries is beginning. Probably no section of medical work today, in institutions, varies so widely in quality as dispensary service. In too many cases the dispensary or out-patient department has been a feeder, a poor relation, of the hospital, not a clinic in which serious medical work is attempted with the average patient. That the dispensary has a place of its own as a great factor in treating and preventing disease among large sections of the population, is forcing itself upon the minds of medical men and hospital administrators. The appointment by the American Hospital Association, at its convention last autumn in this city, of a Committee on Standards of Out-Patient Work, is a witness of this recognition. Dispensary work has evidently become too large a factor in medical service in this country not to require levelling up, standardization, and progressive development in efficiency.

THE INTERNAL USE OF COCAINE.

IT is remarkable that, with the general properties of erythroxylon coca known for centuries, its most valuable alkaloid, cocaine, which was first isolated in 1859, by Niemann, should have been employed to so small an extent in internal medicine. There are, however, some circumstances which account in part for this. A survey of the literature upon the subject will show an abundance of very contradictory evidence regarding coca and its alkaloids, especially cocaine. In the use of preparations made from the crude plant itself these discrepancies can easily be accounted for, owing to the varying alkaloids contained in coca, some of which are highly toxic; also to possible variations in the strength and composition of preparations, since much of this work was done before the era of standardization of drugs. With a chemically pure cocaine there should not be such wide variations, though unless the cocaine is chemically pure, it may contain a certain amount of two very toxic alkaloids, one of which, isatrophycocaine, is a decided heart-muscle poison. Again, ever since the discovery of the anesthetic properties of cocaine the local uses of the drug have attracted such universal attention that the possibilities of its internal employment have been much neglected.

There can be little question that the latter deserves to be resorted to to a far greater extent than is now the case, and an able argument for such use is made in a paper on "The Value of Cocaine in Disturbances of Metabolism," which was read at a recent meeting of the Medical Association of the Greater City of New York, by Dr. William H. Porter, for many years professor of pathology and general medicine in the Post-Graduate Medical School and Hospital. This communication may be regarded as authoritative from the fact that Professor Porter has used cocaine internally for nearly thirty years and in many hundred cases, both acute and chronic. Both historic and experimental evidence, he says, seems to prove conclusively that this substance has the power to augment forcefully almost all the physiological activities of the animal economy and to sustain these augmented functions for a considerable period of time, thus materially enhancing the working power of the system. In physiological dose it stimulates in succession the cerebral hemispheres, the medulla, and the cord. Both mental and muscular activity are augmented to a certain extent, the respirations are increased, and the muscular contraction of the heart is slightly quickened and also increased in force. A slight rise in blood-pressure is caused, and the augmentation of both the respiratory and circulatory activity enhances the reduction processes of the body, an essential requisite in defective metabolism. It stimulates intestinal peristalsis and tends to improve digestion and the absorption of food, while glandular activity in general is more or less increased. It appears to excite all the functions of the body more uniformly

than any other known alkaloid. So long as the dose is kept within the physiological limit, only good will result, but beyond this limit, as in the case of other similar agents, bad results must follow, since it then depresses or arrests the physiological activities at first augmented. That there is a wide difference between its peripheral reflex stimulation and its oxidation reduction within the body is shown by the fact that patients who are profoundly depressed by cocaine when applied locally can take one and two grains of it internally three times a day, not only with no untoward effects, but with highly beneficial results. From the observation of several instances of this kind Porter has concluded that the local and the internal effects of the alkaloid are entirely different, and must be studied separately

In various disease processes and profound disturbances of metabolism in which the normal foods were no longer capable of exciting into physiological activity the sluggish protoplasmic masses of the economy, when everything was at a standstill, as it were, or when it became apparent that the patient was steadily losing ground, he has found, in a large number of cases during the past twenty-five years, that the use of half a grain or more of cocaine three times daily has produced almost miraculous changes for the better, even in those which seemed almost hopeless. In all chronic affections its power for good, he thinks, can hardly be overestimated. For the last ten years he has employed it more and more in the acuter diseases. When cocaine is given early in pneumonia, and throughout the attack, the results have convinced him that the chances for recovery are greater than without its administration. The same may be said of other acute affections, for if it has the great sustaining power which all the evidence seems to show that it possesses, the ability to eliminate the toxins of disease must be markedly augmented by it. It is a point worthy of special note that although he has prescribed this drug so extensively for nearly thirty years, he has yet to meet the first instance in which a patient has acquired the cocaine habit as a result of its internal use. Dr. Porter is accustomed to giving cocaine in capsules, and usually in combination with caffeine and strychnine. Should the criticism be made that one cannot judge accurately as to the true value of a remedy when it is given in conjunction with others, he would refer to the fact that he has sometimes found cocaine efficient in cases where all other means had failed This, to his mind, is the highest test for any remedial agent The discriminating mixture of several alkaloids, by the scientific physician, who knows the exact chemical composition of each, and just what each can accomplish alone and in combination, he believes to be a decided advantage

MASSACHUSETTS CONFERENCE ON TUBERCULOSIS. MASSACHUSETTS ANTI-TUBERCULOSIS LEAGUE.

The sixth session of the Massachusetts Conference on Tuberculosis was held in Boston on March 26, under the presidency of Dr. Walter C. Bailey, chairman of the trustees of hospitals for consumptives. All interested in the movement against tuberculosis were invited to attend and engage in the discussions, and there were many representatives from hospitals, sanatoria, boards of health, tuberculosis and nursing associations, and other organizations interested in health matters in all sections of Massachusetts.

In the forenoon the addresses were by Dr. P. Challis Bartlett, formerly superintendent of the Rutland State Sanatorium, on "Some Present Problems"; by Dr. Cleaveland Floyd, of Boston, on "Tuberculous Infection of Children"; and by Dr. Carl MacCorison, superintendent of the North Reading State Sanatorium, on "The Rôle of Family Clusters in the Prevalence of Consumption." Dr. MacCorison's study of family infection was based on the 1300 cases admitted to his sanatorium during the 3½ years since its opening. Among these there were 134 distinct examples of the incidence of three or more cases of consumption in a single family. Of 9371 persons who died of tuberculosis in Paris in 1911, 2523 were in houses where other cases had occurred.

In the afternoon the addresses at the conference were by Dr. George B. Underwood, president of the Gardner Association for the Relief and Control of Tuberculosis, on "The Social Worker's Educational Influence in the Tuberculosis Campaign"; and by Mr. Seymour H. Stone, secretary of the Boston Association for the Relief and Control of Tuberculosis, on "The Field-Work of the Anti-Tuberculosis Association." Mr. Stone pointed out that the state

has a well-defined policy of combating tuberculosis by providing for early cases at the State sanatoria, and requiring municipalities to segregate advanced cases in local hospitals aided by state subsidy. Several of these papers will be published in an early issue of the JOURNAL.

At the close of the session, Dr. Vincent Y. Bowditch, of Boston, was elected president of the conference for the ensuing year. Following this, the delegates from the various anti-tuberculosis associations organized the Massachusetts Anti-Tuberculosis League, by the adoption of a constitution and by-laws, and the election of the following officers:—

Presidents: Vincent Y. Bowditch, M.D., Boston, ex-President National Association for the Study and Prevention of Tuberculosis; J. F. A. Adams, M.D., Pittsfield, President Anti-Tuberculosis Association; Walter P. Bowers, M.D., Clinton, President Anti-Tuberculosis Association, Pesident Massachusetts Medical Society; James C. Coffey, Worcester, Agent Board of Health.

Treasurer: Arthur Drinkwater, Cambridge, Trustee Massachusetts Hospitals for Consumptives.

Secretary: Seymour H. Stone, 4 Joy Street, Boston, Secretary Association for Relief and Control of Tuberculosis.

Executive Committee: Roger I. Lee, Chairman, Boston; Henry Abrahams, Boston, Cigar Makers' International Union; Vanderpoel Adriance, M. D., Williamstown, President Anti-Tuberculosis Association; Carl A. Allen, M.D., Holyoke, President Association for Prevention and Relief of Tuberculosis; Walter C. Bailey, M.D., Boston, Chairman Trustees Massachusetts Hospital for Consumptives; Enos H. Bigelow, M.D., Framingham; Herbert C. Clapp, M.D., Boston; Eugene A. Darling, M.D., Cambridge.

Already twenty-three anti-tuberculosis associations have joined the League for the purpose of working together in the fight to eradicate the disease. This is an important step and should help to coördinate the work throughout the state.

The office of the League will be at 4 Joy Street, Boston, and anyone interested in the problem can become a member by the payment of $1.00 per year. Anti-tuberculosis associations and other health organizations are eligible to membership.

MEDICAL NOTES.

AWARD TO DR. RICE.—Report from London on March 27 announces that the King's medal of the Royal Geographical Society has been awarded this year to Dr. Alexander Hamilton Rice of Boston, for his distinguished work in the exploration of the Amazon and Orinoco river basins.

TWO FOREIGN MEDICAL CONGRESSES.—The forty-third Congress of the German Surgical Society will be held in Berlin from April 15 to 18, inclusive.

The next congress of the International Association of Thalassotherapy will be held at Cannesvon, April 15 and following days, under the presidency of Professor d'Arsonval. Prince Albert I of Monaco, a member of the Institute of France, will be honorary president. The question which will be specially studied is heliotherapy, and the reports to be presented will deal with the nature of solar radiations at the sea level and the means of measuring them; marine heliotherapy in its relation to actinomometry and climatology, the biological effects and dosage of marine heliotherapy; its effects in surgical tuberculosis, in abdominal tuberculosis, in pleuro-pulmonary and adeno-mediastinal tuberculosis, in the treatment of cutaneous tuberculosis, and in tuberculous affections generally.

GIFTS BY AN AMERICAN PHYSICIAN.—Report from Berlin on March 28 announces that Dr. Joseph Schneider, of Milwaukee, Wis., who in 1912 gave $25,000 for the promotion of public health in his native city of Würzburg in Bavaria, has recently made another gift of $25,000 for the same purpose.

OPENING OF THE HOOPER INSTITUTE.—The Hooper Institute for Medical Research, at the University of California Hospital, San Francisco, was officially opened on March 7, with addresses by Dr. Henry S. Pritchett, of the Carnegie Foundation, and Dr. Richard Mills Pearce of Philadelphia. The institute was founded with an endowment of $1,000,000 in memory of Mr. George William Hooper by his widow.

NEW DEPARTMENT OF ROCKEFELLER INSTITUTE.—On March 31, the New Jersey state legislature passed a bill permitting outside medical societies to engage in animal experimentation within the state. This was done to enable the

location at Rahway, N. J., near the New Jersey Agricultural Experiment Station, of the new department of the Rockefeller Institute for the study of animal diseases, for the endowment of which Mr. John D. Rockefeller has recently given a fund of $1,000,000.

BOSTON AND NEW ENGLAND.

Lectures by Dr. Fischer.—Dr. Guido Fischer, of Marburg, Germany, has been in Boston the past fortnight, giving at the Harvard Dental School a series of clinical lectures to show his methods of local dental anesthesia.

Danvers State Hospital.—The recently published thirty-sixth annual report of the trustees of the Danvers (Mass.) State Hospital records the work of that institution for the year ended Nov. 30, 1913. During this period the total number of patients treated was 2216, of whom 1029 were men and 1187 women. There were 206 deaths, in 86 of which cases autopsies were performed. From the training school, 7 nurses were graduated. Attention is called to the urgent need of a nurses' home for male attendants and married couples.

Boston Lying-in Hospital.—The recently published eighty-first annual report of the Boston Lying-in Hospital records the work of that institution for the calendar year 1913. During this period 884 babies were born in the hospital and 1824 in its out-patient department. Thirty-six nurses were graduated from the training-school. Particular attention should be called to the work of the pregnancy clinic, which during the year had supervision of 1652 prospective mothers. The value of this work in the prevention of pathologic complications and in public education is of great moment.

Massachusetts General and McLean Hospitals.—The recently published one hundredth annual report of the trustees of the Massachusetts General Hospital records the work of that institution for the calendar year 1913, the second year of the second century of its existence. With it is published the ninety-sixth annual report of the superintendent of the McLean Hospital. During this year 6251 patients were admitted to the wards of the General Hospital, 5424 were treated in the accident room, and 24,887 new cases in the out-patient department. The new Nurses' Home was opened during the year, and 46 nurses graduated from the training-school. A similar new home is needed for nurses at the McLean Hospital. At this hospital 364 patients were under treatment during the year; while 733 were received at the Convalescent Hospital in Waverly. The urgent needs of the General Hospital are an administration building, a private ward, and a ward for children. It is earnestly to be hoped that the charitable generosity of the public, of which there has already been abundant evidence, will soon make possible these necessary additions to the equipment of the hospital for further service and progress.

NEW YORK.

Division of Child Hygiene.—Dr. H. L. K. Shaw, director of the Division of Child Hygiene, of the State Health Department, established by the new health law, announces his plans in the *Bulletin* of the department. Among the matters included in these are the establishment of infant milk or welfare stations, the encouragement and systematizing of prenatal work, and local campaigns for the reduction of infant mortality, assisted by the department by means of exhibits, literature and lectures. The division is prepared, he states, to coöperate actively with local officials and others, so that the toll of infant lives this year may be appreciably lessened.

Apropos of the recent appeal of the New York State Grange for a Division of Rural Hygiene in the State Department of Health, the department has announced its readiness to do its part, and Commissioner Biggs expresses the opinion that with sufficient funds to establish and maintain an active and efficient division of the kind, there is no reason why the Health Department cannot save thousands of lives which are lost each year by preventable diseases.

New York Milk Committee.—The New York Milk Committee, through its secretary, Paul E. Taylor, secretary of the New York Milk Committee, has issued a statement in which he asserts that since 1907 more than $2,000,000 has been wasted by the state of New York through indemnity granted to what appears to be the selected list of owners of tuberculous cows. Many of the condemned cows, he says, have been milked until they became dry, and then fattened for food purposes after installations in state institutions. The health of boys who are inmates of these institutions has been endangered

through caring for the tuberculous cows. New York pays from $75 to $125 each for the diseased animals, while the standard price in New Jersey is $15. It is furthermore charged that New Jersey farmers sell the diseased cattle to sausage factories in Jersey City, and that their meat is made into bologna sausages and sold in New York.

PREVENTION OF TUBERCULOSIS.—The committee on the prevention of tuberculosis of the Charity Organization Society has issued a report covering the last three years. In it reference is made to the greatly overcrowded condition of the tuberculosis hospitals of the city. At the large Metropolitan Hospital on Blackwell's Island there have at times been more than 36% more patients than it was designed to accommodate normally, and the same state of affairs has existed to a greater or less degree in all the institutions of the kind. The hospital authorities are not to blame as, under the law, they cannot refuse to admit patients; nor are the financial authorities censured. The latter have been extremely generous, but it seems to have been impossible to keep up with the city's needs. At present, however, the situation is somewhat relieved. An appropriation of $2,000,000 has been made which will soon increase the number of hospital beds available for tuberculosis patients from 2270 to approximately 4000. This provides for the completion of Sea View Hospital, on Staten Island, which will accommodate 1000 patients, for the addition of a new pavilion accommodating 112 at the Metropolitan Hospital, for two additional pavilions at Riverside Hospital, on North Brother Island, and for new pavilions and shacks at the Otisville Sanatorium. The outlook is considered encouraging, as the official reports of the Health Department show that the death-rate from pulmonary tuberculosis in the city has fallen from 2.25 in 1908 to 1.66 in 1912.

APPOINTMENT OF DR. EMERSON.—At a meeting of the City Board of Health, held on March 31, Dr. Haven Emerson, associate in physiology and in medicine at Columbia University and assisting visiting physician to Bellevue Hospital, was appointed sanitary superintendent and deputy commisioner of health.

POLLUTION OF BATHS.—Health Commissioner Goldwater has sent a letter to Borough President Marks in which he states that his department will issue no permits this season for either public or private baths in Manhattan waters, as tests have conclusively shown that the waters of the Hudson, Harlem, East River, and Upper Bay are dangerously polluted with sewage. He expresses the opinion that many cases of typhoid fever and other diseases have been due to bathing in these waters. That the poor may not suffer from this deprivation he urges that increased facilities for interior bathing should be provided by the city at the earliest possible date.

RECEPTION TO DR. L'ESPÉRANCE.—A farewell reception was given Dr. Elise S. L'Espérance, this year's winner of the Mary Putnam Jacobi Fellowship, on the afternoon of April 4, at the residence of Dr. Emily Dunning Barringer, 828 West End Avenue, New York City. All women physicians were invited to meet both Dr. L'Espérance and also Dr. Alice Rohdè, the first winner of the fellowship. The Mary Putnam Jacobi Fellowship Fund was raised through the efforts of the members of the Women's Medical Association of New York City, many of whom had been pupils of Dr. Jacobi at the Women's Medical College of the New York Infirmary. It is open to all women graduates in medicine. Dr. L'Espérance sails in April to continue her cancer research work, which she is pursuing under the direction of Dr. Ewing of Cornell.

Current Literature

MEDICAL RECORD.

MARCH 21, 1914.

1. *MCCASKEY, B. W. *A New Method for Estimating the Functional Capacity of the Kidneys by Forced Elimination of Preformed Urea.*
2. BERKELEY, W. N. *The Use of Pineal Gland in the Treatment of Certain Classes of Defective Children.*
3. CUNNINGHAM, W. P. *Lues—The Incorrigible.*
4. MEYERS, J. *The Passing of the Stomach Tube.*
5. BROWN, J. S. *The Etiology and Surgical Treatment of Gastric and Duodenal Ulcer.*
6. MASSEY, G. B. *Surgical Ionization and Other Physical Forces in the Treatment of Cancer.*
7. MCDONALD, E. *A Skin Varnish and Substitute for Rubber Gloves.*
8. HARVEY, T. W. *Pituitary Preparations in Postoperative Conditions.*

1. McCaskey says that functional impairment of the kidneys may be limited to certain classes of waste products. There may be varying degrees of renal block for urea, chlorides and water, and from a therapeutic point of view it is of the greatest importance

to differentiate between these types because dietetic treatment depends upon it. The phenolsulphonephthalein test is inadequate because there is no parallelism between excretion of phthalein and of urea. By surcharging the blood with urea and determining the rate of its excretion, the permeability of the kidneys for this substance can be determined with great accuracy. Unless there is gastric stasis the ingestion of 30 grams of urea is sufficient. The capacity of the kidneys for the excretion of chlorides and of water can be determined in the same way but the problem is more complex. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

MARCH 21, 1914.

1. BRILL, A. A. *Fairy Tales as a Determinant of Dreams and Neurotic Symptoms.*
2. HOLMES, B. *The Abderhalden Reaction in Psychiatry.*
3. WILLSON, R. N. *Scarlatiniform Eruptions in Septic States.*
4. HAYS, H. *Relaxed Ear Drums.*
5. LOWENBURG, H. *The Etiology and Treatment of Infantile Wasting.*
6. STIMSON, C. M. *The Gynecological Examination.*
7. CORNWALL, E. E. *Acute Lymphocythemia.*
8. WOOTTON, H. W. *Trachoma, and Allied Conjunctival Affections.*
9. HERTZBERG, R. *The Graduate Nurse.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MARCH 21, 1914.

1. *ANDERSON, J. F. *Danger in the Subcutaneous Injection of Solutions of Crotalin, with Report of a Fatal Case.*
2. *OPIE, E. L., AND ALFORD, L. B. *The Influence of Diet on Hepatic Necrosis and Toxicity of Chloroform.*
3. FRINK, H. W. *What Is a Complex?*
4. SCHAIE, M. *Artificial Pneumothorax. A Summary of Forty-Five Cases at Bedford.*
5. CUTTING, J. A., AND MACK, C. W. *The Intraspinal Injection of Salvarsanized Serum in Paresis.*
6. LITTIG, L. W. *Subacromial Bursitis.*
7. BECK, C. *Gastro-enterostomy by a Plastic Flap.*
8. HERTZLER, A. E. *Technic of Vaginal Hysterectomy.*
9. LIPPMAN, C. W. *Simplification of Duodenal Tube Examination.*
10. GASWITH, H. K. *Bromid Eruption Simulating Blastomycosis or Eczema.*
11. BERNSTEIN, H. S. *A Suggestion in the Treatment of Syphilis.*
12. RITTER, J. *An Anomalous Temperature-Curve in the Moderately Advanced Tuberculous.*
13. PATTERSON, J. *Elephantiasis, with a Report of a Case.*
14. MCLEAN, F. C. *The Sugar-Content of the Blood and Its Clinical Significance.*
15. SMITH, F. H. *Benzol Treatment in Two Cases of Leukemia.*
16. WHOLEY, C. C. *Cases of Insanity Arising from Inherent Moral Defectiveness.*
17. OTRICH, G. C. *Lodgment of a Cockle-Burr in the Vestibule of the Larynx.*
18. VROOMAN, C. H., AND WITTICH, F. W. *Apparatus for Producing Artificial Pneumothorax.*
19. LITTLE, Y. A. *Wall of the Stomach Perforated by a Pencil.*
20. STEELE, A. E. *A Case of Micrococcus Tetragenus Septicemia.*

1. Anderson makes out a strong case against the use of crotalin (rattlesnake venom) in any diseased condition in which it is used entirely empirically, such as in epilepsy and tuberculosis.

2. Experiments by these authors furnish evidence that fat administered to animals and presumably stored in part in the liver increases the susceptibility of the organ to the injurious action of chloroform. In view of the well-known solubility and diffusibility of chloroform in fats, they suggest that the fat of the liver cells determines the fixation of chloroform and occurrence of necrosis. The experiments with carbohydrates, on the contrary, furnish confirmation of the views that carbohydrates protect the body proteins from disintegration. Since necrosis of the liver with a variety of diseases, namely, toxemia of pregnancy, acute yellow atrophy of the liver, yellow liver and poisoning with a variety of substances exhibits close similarity to the necrosis of chloroform, it is suggested that a carbohydrate diet may be found to influence favorably the course of these diseases. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

MARCH, 1914.

1. HENDERSON, D. K. *Remarks on a Case Received in the Henry Phipps Psychiatric Clinic.*
2. CHURCHMAN, J. W. *Essential Sialorrhea in a Dog, Cured by Excision of the Parotid, Submaxillary and a Portion of the Sublingual Glands.*
3. *VEST, C. W. *Observation Following the Use of Collargol in Pyelography.*
4. MILLER, S. R. *Koplik's Spots Occurring on the Tonsils of a Child Subsequently Found to be Anaphylactic to Egg Albumen.*
5. FORD, W. W. *A Brief History of Quarantine.*
6. HUNNICUTT, J. A., AND JONES, A. P. *Tattoo Marks for the Identification of Animals in Laboratories.*
7. THAYER, W. S. *In Memoriam. Reginald Heber Fitz.*
8. THAYER, W. S. *Two Men: George Alexander Gibson, Hugh Angus Stewart.*

3. Vest records some unusual symptoms following the use of collargol in pyelography in six cases. Ten and fifteen per cent. solutions were used. Severe pain may result, with rise of temperature up to 102°, with definite urinary changes. He advises against using collargol for such purposes unless absolutely necessary. If used it should be allowed to enter the renal pelvis very slowly and under very slight pressure. [J. B. H.]

JOURNAL OF MEDICAL RESEARCH.

JANUARY, 1914.

1. WOLBACH AND HONEIJ. *A Critical Review of the Bacteriology of Human and Rat Leprosy.*
2. KOLMER. *Concerning Experimental Anaphylaxis in Labor.*
3. MACLACHLAN. *Extensive Pigmentation of the Brain Associated with Nevi Pigmentosi of the Skin.*
4. BURGESS. *Malignant Rhabdomyoma with Multiple Metastases.*
5. WESTON. *Estimates of Cholesterol in Serum by Gravimetric and Colorimetric Methods.*
6. WHITMAN. *Giant Cell Endothelioma of the Gums with Observations on the Formation of Giant Cells in the Same, and in Tuberculosis and Blastomycosis.*
7. WOLBACH. *Notes on the Life Cycle of a Hemogregarine Found in a Monitor.*
8. SUTTON. *The Histopathology of Fordyce's Disease.*
9. *FLOYD AND WOLBACH. *On the Differentiation of Streptococci; Preliminary Notes.*

9. Floyd and Wolbach present the preliminary report on the work of differentiation of streptococci. As a rule those organisms presenting high virulence

show slight fermentative properties. It is evident that, in all probability, not so many groups of this variety exist as was believed by Winslow. The gentian violet test for virulence may be of rough value, though it is of no great value. Further work is suggested along the line of agglutination and complement fixation. The latter test may prove of great value in differentiation. At present the greatest dependence is placed upon the sugar-fermentation reaction and the virulence of the organisms to laboratory animals. [L. H. S.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

FEBRUARY, 1914.

1. *BREWER, G. E. *A Preliminary Report on a Simple and Rapid Method of Pyloric Closure in Gastro-Enterostomy.*
2. LOWER, W. E. *Neoplasms of the Renal Pelvis; with Especial Reference to Transplantation in the Ureter and Bladder.*
3. *MCWILLIAMS, C. A. *The Function of the Periosteum in Bone Transplants, Based on Four Human Transplantations Without Periosteum, and Some Animal Experiments.*
4. *ELSBERG, C. A. *The Surgical Treatment of Intramedullary Affections of the Spinal Cord.*
5. *MCGLINN, J. A. *The Heart in Fibroid Tumors of the Uterus.*
6. *ROWNTREE, L. G., GERAGHTY, J. T., AND MARSHALL, E. K. *A Study of the Comparative Value of Functional Tests in the Surgical Diseases of the Kidney Secondary to Obstruction in the Lower Urinary Tract.*
7. BALFOUR, D. C., AND WILDNER, F. *The Intercarotid Paraganglion and Its Tumors.*
8. KEYES, E. L., JR. *Concerning Apparent Cures of Renal Tuberculosis.*
9. *COLE, L. G. *The Roentgenographic Diagnosis of Gall-Stones and Cholecystitis.*
10. EASTMAN, J. R. *A Further Study of Pericolonic Membranes.*
11. PHILLIPS, C. E. *Fixation of Fractures by Means of Autogenous Intramedullary Bone Splints.*
12. CROTTI, A. *Indirect Transfusion of Blood.*
13. SKINNER, E. H. *The Mathematical Calculation of Prognosis in Fractures at the Ankle and Wrist.*
14. HARPOLE, W. S., AND FOX, C. M. *Case of Pernicious Anemia Treated by Splenectomy: Marked Improvement.*
15. NICHOLSON, W. R. *The Extraperitoneal Cesarean Section. Its Place in Obstetrics.*
16. BIEHN, J. F. *Some Causes of Failure in Bacterin Therapy.*
17. PRESTON, M. E. *New Appliance for the Internal Fixation of Fractures of the Femoral Neck.*

1. Brewer in animal experimentation finds that an aluminum band will produce a mechanical closure of the pylorus in every instance, that in every experiment in which the animal lived more than nine days the band was completely embedded in newly formed tissue and invisible, and that in none of the animals did the band give rise to necrosis of the compressed tissues, signs of irritation or leakage.

3. McWilliams' article is of extreme value and practical importance. He finds that if the whole diameter of a bone be removed, then this bone will regenerate between the ends of the fragments if the whole or a part of the periosteum be preserved, binding the defect, but very little filling in will take place if the entire periosteum has been removed from between the fragments. Provided a graft be living and taken from the same patient, its future life depends on an efficient blood supply, irrespective of whether it is in contact with living bone or periosteum or not. Periosteum when transplanted alone into soft parts may produce living bone. Splitting of the periosteum of a graft is unnecessary. No matter what the blood supply, grafts should be transplanted with as much periosteum as possible.

4. Elsberg in an excellent paper containing many excellent illustrations, describes his method of extension in the surgical treatment of intramedullary affections of the cord. The method is as follows: The laminectomy being done and the dura opened, a short incision is made over the area where the growth seems nearest the surface, dividing the pia and substance of the column down to the tumor. The tumor will then begin to bulge through the incision. It should never be excised then but the wound loosely closed and reopened at a second operation a week or ten days later, when the tumor will generally be found to have extended itself and can be easily separated from adhesions and removed. Eleven illustrative cases are published in the article.

5. McGlinn does not believe that the definite entity of fibroid heart exists. Arteriosclerosis in these tumors is a part of the advanced age and not directly referable to fibroids.

6. The authors claim that the phthalein test affords an indispensable index of the true renal condition in functional impairment due to obstruction in the lower urinary tract.

9. Cole produces some truly beautiful skiagraphs of gall-stones and emphasizes the importance of Roentgen examination to differentiate between right renal calculi and gall stones. [E. H. R.]

MARCH, 1914.

1. *FINNEY, J. M. T., AND FRIEDENWALD, J. *Thirteen Years' Experience with Pyloroplasty. A Study of One Hundred Cases.*
2. *MACCARTY, W. C. *Clinical Suggestions Based upon a Study of Primary, Secondary (Carcinoma?), and Tertiary or Migratory (Carcinoma) Epithelial Hyperplasia in the Breast.*
3. *JUDD, E. S., AND SISTRUNK, W. E. *End-Results in Operations for Cancer of the Breast.*
4. *DEAVER, J. B. *Gastric Hemorrhage.*
5. CURTIS, A. H. *On the Etiology and Bacteriology of Leucorrhea.*
6. BARNEY, J. D. *Abscess of the Testicle.*
7. BESLEY, F. A. *Elephantiasis Congenitalis Lymphangiectatica. With the Report of Case from the Service of Dr. Besley and a Pathological Report by Harry Jackson, M.D.*
8. VON EBERTS, E. M., AND HILL, W. H. P. *Free Transplantation of Fascia.*
9. MAYO, C. H. *A Summing Up of the Goiter Question.*
10. MANN, A. T. *A Rubber Tube in the Reconstruction of an Obliterated Bile-Duct: an Hepaticoduodenostomy.*
11. MACGOWAN, G. *Conservative Surgery of the Testicle.*
12. BINNIE, J. F. *Some Uses of Fat in Surgery.*
13. PARK, R. *The Relation of the Ductless Glands to the Work of the Surgeon.*
14. LERCHE, W. *Spastic Tumor of the Pyloric Canal and Other Spastic Conditions of the Stomach: Their Surgical Treatment.*
15. MCGRATH, B. F. *A Simple Apparatus for Transfusion by the Aspiration-Injection Method.*
16. KANE, H. F. *Technic of Closing the Abdominal Incision.*
17. PETERKIN, G. S. *Scalpel Surgery of Tumors of the Bladder.*
18. SKILLERN, P. G. *On the Blocking of Infra-Orbital and Mental Nerves at Their Foramina to Induce Operative Anesthesia in Their Cutaneous Distribution.*
19. GARRETT, N. M. *Management of Labor in Cases with Relatively Contracted Pelves.*

1. This article describes by text and beautiful plates the technic of this operation. The authors believe this operation has certain advantages over

gastro-enterostomy and few of its disadvantages. The only contraindications are inability to mobilize the duodenum when adhesions are too dense and thickening and infiltration about the pylorus; also in gastric disturbances not dependent on organic disease. The special advantages lie in the opportunity to excise all ulcers in the anterior walls of the stomach or duodenum after direct inspection, also application of treatment to ulcers in the posterior walls. Immediate and final results are most encouraging.

2. This article is of interest and worth careful study, especially to those interested in carcinoma and its early diagnosis.

3. These authors believe that the end results for cancer of the breast are as good as, if not better, than the results for cancer elsewhere. Prognosis in young people who had the benefit of early operation was better than expected. Results are evidently improving and this seems due to the fact that patients are coming earlier to operation, rather than to any improvement in technic.

4. Mortality in gastric hemorrhage is becoming less, chiefly because of increasing accuracy of recognition of the proper type of case in which surgery is to be employed.

Articles 5, 8, 9, 12 and 13 are of especial interest of a practical sort, but not especially adapted to review. [E. H. R.]

The Lancet.

February 21, 1914.

1. *Hey, E. W. *Hunterian Lecture on the Experimental Principles of the Operative Treatment of Fractures, and Their Clinical Application.*
2. *Spencer, W. G. *The Thyreoglossal Tract.*
3. Bibby, J. B., and Stewart, M. J. *Primary Carcinoma of the First Part of the Duodenum, with Secondary Involvement of the Common Bile-Duct.*
4. Thiel, F. H., and Embleton, D. *Methods of Increasing the Accuracy and Delicacy of the Wassermann Reaction.*
5. Rawling, L. B. *Decompression of the Brain in Intracranial Hemorrhage: The Value of the Operation in Cases the Outcome of Accident or Disease.*
6. Corbett, D. *A New Radiometer for Use with Sabouraud's Pastilles.*

1. In this second Hunterian Lecture Graves takes up the methods of transfixing bolts and bolted plates as useful in cases of para-articular fractures, fractures of the long bones, etc. He considers the various kinds of plates, and the use of intramedullary pegs. He discusses the treatment of old cases of non union, indirect fixation by transfixion apparatus, immobilization by splints or plastics, et al. He goes into the various methods of treatment by massage and early movement, and methods of extension. He discusses those cases suited for operative treatment, and compares operative and non-operative methods. There are numerous diagrams and illustrations.

2. In an article with an extensive bibliography, Spencer describes the thyreoglossal tract and the various abnormal conditions, cysts, etc., which may arise along its course. He presents numerous illustrative cases. [J. B. H.]

February 28, 1914.

1. *Gilford, H. *Hunterian Lectures on Infantilism. Lecture I.*
2. *Sherman, T. *The Morbid Anatomy of Tuberculosis in Man.*
3. *Fairlie, H. P. *A Comparison of the Action of Chloroform and Ether on the Blood-Pressure.*
4. Jones, D. W. C. *A Case of Chronic Joint Lesions in Hemophilia.*
5. Whitfield, A. *On Three Cases of Eczematous Dermatitis Produced by Poisonous Plants.*
6. Maylard, A. E. *The Fate of a Plug of Iodoform Gauze Accidentally Left in the Abdomen.*

1. In the first Hunterian Lecture Gilford defines infantilism as a conspicuous arrest or delay of development, subdividing it into infantalism of cells, of organs, or of the individual as a whole. This latter he further subdivides into toxic and correlative infantilism. This somewhat complex subject he considers in great detail.

2. Sherman presents a mass of statistics, tables, and other information of the greatest importance in this article, which, however, is very difficult to review. As a summary of an immense amount of work, brought up to date (the paper was read Oct. 23, 1913, in Berlin) it is of immense value to all interested in this subject. Much of this first paper is devoted to general consideration and a discussion of the nature and modes of infection.

3. Fairlie concludes that ether is better for short operations without shock, but that chloroform is better for longer and more serious operations. [J. B. H.]

British Medical Journal.

February 21, 1914.

1. *Gray, H. M. W., and Mitchell, A. *A Series of Cases of Appendicitis in Children.*
2. Sheen, W. *Some Observations on the Operative Treatment of Fractures by Metal Plates and Screws.*
3. Maguire, C. *Congenital Deformity of Femur.*
4. Crow, D. A. *A Case of Chimney-Sweep's Cancer, and a Suggestion as to the Pathology of Cancer.*
5. *Cantle, J. *The Tuning-Fork and Stethoscope in the Estimation of Abdominal and Thoracic Viscera.*
6. Pruen, S. T. *Epidemic Cervical Adenitis with Cardiac Complications.*
7. Harrison, W. J. *Chronically Enlarged Tonsils and Their Treatment.*
8. Wilson, W. *Earache of Obscure Origin.*

1. The writers analyze 200 cases of appendicitis in children. Of the 60 acute cases, 3-13 years, 19 died, a mortality of 15%. There were no cases of either pneumonia or bronchitis in the entire series. He believes that in acute cases a resulting diffuse peritonitis is not uncommon; that prognosis in any given case is absolutely uncertain, and that complaint of abdominal pain, especially when accompanied by sickness should always provoke careful inquiry and examination. No aperients should be given by mouth or by any other route, and all food should be withheld.

5. Cantle describes the use of the tuning-fork-stethoscope method in outlining with precision such organs as liver, spleen, stomach, cecum, heart, etc. The tuning fork, when vibrating and placed over solid organs gives out a loud note; over hollow viscera, only a soft note to the person listening over this area with a stethoscope. This method is of interest and may be of value. [J. B. H.]

February 28, 1914.

1. Keith, A. *An Anthropological Study of Some Portraits of Shakespeare and of Burns.*
2. *Shufflebotham, F. *The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. Lecture I.*
3. *Farrant, P. *The Pathological Changes of the Thyroid in Disease.*
4. Heslop, J. W. *Dissemination in Carcinoma of the Rectum.*

5. DONALDSON, M. *Some Observations on the Effects of Adrenalin.*
6. *VALLOW, H. *Alcohol, Housing Conditions and Consumption.*

2. This is an interesting study of the conditions in England under which miners work, their domestic circumstances, mortality, the fatal and non-fatal accidents and their causes, and the various diseases which may arise.

3. Farrant, basing his remarks on a study of 700 thyroids obtained at post mortem, discusses first the bactéria and other organisms therein found and then discusses the condition of the thyroid in relation to the disease from which the patient died, including diseases of unknown origin, measles, whooping cough, etc., malignant diseases, glandular and blood diseases. The various changes, such as acute and chronic hyperplasia, he describes in some detail.

6. In a short paper on the relation of tuberculosis to alcoholism and housing conditions, Vallow draws the natural and only possible conclusions which can be drawn from such a study. [J. B. H.]

THE PRACTITIONER.

MARCH, 1914.

1. *LANE, W. A. *Chronic Intestinal Stasis.*
2. *LAZARUS-BARLOW, W. S. *Radiation and New Growths.*
3. *CHEATLE, G. L. *Sprains and Strains of the Knee Joint.*
4. WOODWARD, C. *Treatment of Fractures by Direct Extension of the Fragments.*
5. HOWELL, C. M. H. *Brachial Neuritis.*
6. *CARLISS, A. *The Diagnosis of an Acute Abdomen.*
7. MOORHEAD, T. G. *Endocarditis Lenta.*
8. EMERY, W. D'E. *Recent Advances in Clinical Pathology.*
9. FLEMING, A. *Recent Work on Vaccine Therapy.*
10. KESTEVEN, W. H. *"Myalgia," or Muscular Rheumatism.*
11. CURTIN, E. *An Attempt to Evaluate on a Physiological Basis Some Current Methods of Treating Acute Pneumonia.*
12. ANDERSON, W. K. *Morphinomania.*
13. FRASER, E. T. *The Thermoprecipitin Reaction in the Diagnosis of Pulmonary Tuberculosis.*
14. BILLING, E. *The Relation of the Time of Day to Mortality.*
15. DALAL, A. K. *Care of Rat-Bite Fever, Treated with Intravenous Injections of Neosalvarsan.*

1. In a long paper Lane again reviews the subject of chronic intestinal stasis and cites his own well-known views upon the surgical treatment of this condition. There are many illustrative diagrams. Both the conclusions which Lane draws as to the far-reaching effects of such stasis as the cause of apparently all the ills to which we are subject, and the ideas as to operating go much too far and too fast for the average American to keep pace with.

2. This is a highly technical article on a subject still in the experimental stage.

3. This paper is one of practical value to surgeons and general practitioners. There are numerous excellent plates.

6. Carliss in a long article discusses the diagnosis of various acute abdominal conditions due to hemorrhagic, inflammatory or obstructive lesions. [J. B. H.]

WIENER KLINISCHE WOCHENSCHRIFT.

NO. 1. JANUARY 1, 1914.

1. SCHUTZ, E. *Duodenal Ulcer.*
2. *GRAFF, E. *The Influence of Gravidity on The Growth of Malignant Tumors.*
3. PUBJESZ, B. *The Demonstration of Typhoid Bacilli in the Duodenum with the Use of the Einhorn Sound.*
4. WALZEL, P. *Successful Operation on Stab-Wound of the Pancreas.*
5. PFANNER, W. *A Case of Spina Bifida Occulta Lateralis with Bladder Diverticula and Incomplete Urachus Fistula.*
6. BONDI, J. *The Relation of Maternal Nutrition to the Weight of the Fetus.*

2. The author describes seven series of experimental inoculation of cancer in rats with a consideration of comparative rapidity of growth in gravid and non-gravid animals. In one case only was the tumor in the gravid as large as in the non-gravid; in one series there was no growth but resorption in the gravid animals. It would seem from this that pregnancy acts unfavorably to the growth of tumors. Ehrlich's theory of atreptic immunity may offer the explanation. The developing ovum may be considered a parasite as also is the malignant tumor, the one growing at the expense of the other. [F. S. K.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 103. PART 2.

10. *KAERGER, E. *Treatment of Cleft Palate, with Particular Reference to Early Operation and Brophy's Method.*
11. *WALJASCHKO, G. A., AND LEBEDEW, A. A. *The Healing of Wounds of Liver, Spleen and Kidney.*
12. RIEDL, H. *Experiences with Nail Extension.*
13. *TOIDA, R. *The Question of the Sterility of Bile under Normal Conditions and Its Bactericidal Effect on Pathogenic Bacteria.*
14. OSHIMA, J. *The Fate of Homoplastic Skin Transplants in Man.*
16. UFFREDUZZI, O., AND GIORDANNO, G. *Experimental Surgery of the Thoracic Aorta under Continuous Intratracheal Insufflation Narcosis.*
16. BRESLAUER, F. *Cerebral Pressure. I. Acute Conditions.*
17. MEYER, E. *Hernia Obturatoria.*
18. BERG, J. *The Recognition of True Stenosis of the Bile-passages from Other Causes Than Gallstones.*
19. GRINENKO, A. P. *The Total Removal of the Prostate by the So-called Hypertrophy Itself.*
20. I. JEGER, E., AND ISRAEL, W. *The Final Result of Transplanting the Renal Veins to Another Portion of the Vena Cava.*
II. GOLIANIZKI, I. *Ligature of the Vessels Preliminary to Disarticulation of the Hip.*

10. A long, technical article with illustrations showing some excellent cosmetic results after Brophy's operation for hare lip.

11. Waljaschko and Lebedew suggest the use of a leaf of superficial fascia in closing wounds of the parenchymatous organs. The fascial covering acts as a hemostatic, and offers the suture-material a hold similar to that furnished by the capsule of an organ. Fewer sutures need be used, and the pressure need not be so great, thereby decreasing the amount of parenchymatous tissue which would otherwise be liable to pressure necrosis. Multiple rupture of the kidney has been treated in this way with good results, and the writers suggest the use of a leaf of fascia as a substitute for the kidney capsule.

13. Toida, experimenting with bile obtained from men and dogs, found that the bile of both is normally sterile. Human bile he found to be a very good medium for bacillus coli, fairly good for the bacilli of Asiatic cholera, bacillus paratyphosus B. and B. dysenteriae (Shiga-Kruse group), slightly favorable for bacillus pyocyaneus and staphylococcus pyogenes aureus. It was unfavorable to the streptococcus pyogenes and diplococcus pneumoniae. The

bile of dogs seemed a less suitable medium for bacillus coli, bact. paratyphi a., bact. dysenteriae Shiga-Kruse and staph. pyogenes aureus.

Human bile appeared to increase the virulence of Bac. Coli Communis, and in the incubator most of the organisms mentioned, except streptococcus and pneumococcus, lived for a month, some for 70 or 80 days. Age and sex seemed of little importance. [G. G. S.]

DIE THERAPIE DER GEGENWART.

JANUARY, 1914.

1. KLEMPERER, S. *In What Internal Diseases Is Operative Removal of the Spleen to Be Considered?*
2. SCHITTENHELM, A., AND MEYER-BETZ, F. *On the Treatment of Septic Affections.*
3. SALGE, B. *The Treatment of Rachitis.*
4. OPITZ, E. *The Treatment of Sterility in the Female.*
5. CLAUS. *What Can the General Practitioner Do in the Prophylaxis and Treatment of Diseases of the Ear?*
6. *LÖHE, H. *Experiments with a New Iodine-Albumin Preparation (Testijodyl).*
7. MEIDNER. *Modern Radium Treatment of Tumors.*

6. Löhe reports his experience with testijodyl, a new iodine-albumin compound, in the treatment of syphilis. His patients took the tablets without difficulty, and he observed no untoward effects. The acne and coryza often observed after iodide of potassium, were lacking. The specific action of the remedy, whether given alone or with mercury and salvarsan, was prompt and very similar to that of potassium iodide. The amount of iodine received by the patient is considerably less than in the usual dosage of the iodide. [L. D. C.]

ANNALES DE L'INSTITUT PASTEUR.

VOL. 24, No. 1. JANUARY, 1914.

1. MARIE, A. *Activation of the Tetanus Toxin.*
2. *CINCA, A. *Effect of a Chemical Abscess upon Experimental Trypanosomiasis and upon Its Treatment with Atoxyl.*
3. MAZÉ, P. *Investigations upon Vegetable Physiology; Effect of Mineral Solutions upon the Development of Maize.*
4. MAZÉ, P., RUST, M., AND LEMORGUE, M. *Study of Chlorosis of the Higher Vegetables Attributed to the Excessive Richness of the Soil in Lime.*
5. CAZALBOU, L. *The Cultural Evolution of Dermatophytes.*

2. Cinca has studied experimentally the effect of a sterile abscess produced by turpentine upon the presence of trypanosomes in the blood and without the use of atoxyl. The abscess forms from the turpentine in about 4 to 5 days. In his first series he studied the effect of these abscesses upon the trypanosomes of Ouganda and Surra in the guinea-pigs. The appearance of the trypanosomes in the blood was retarded for some time, and after they had appeared such an abscess would make them disappear entirely or become greatly diminished for some time, but a recurrence of the parasites appeared later. The animals treated thus survived somewhat better than the controls. His second series was treated both by the turpentine abscess and atoxyl. The animals treated with both showed a more marked disappearance of the parasites from the blood than those treated only with atoxyl. After the abscess repeated injections of atoxyl would keep the parasites from the blood for a long time but could not produce a permanent cure. He feels that the abscess and atoxyl treatment combined is more satisfactory than either treatment alone and thinks it may prove of considerable value in the treatment of animals for these infections. [C. F., JR.]

BULLETTINO DELLE SCIENZE MEDICHE.

JUNE, 1913.

1. PAZZI, M. *Psychic Disorders of the Female in Relation to the Normal and Pathologic Sexual Functions.*
2. FIORINI, M. *A Useful Device to Augment the Oscillations in the Dynamic Explorer of the Sphygmodynamometer.*
3. MUSINI, E. *A Case of Facial Plastic for Grave Post-operative Deformity, and of Canalization of Stenson's Duct for Salivary Fistula.*
4. BALDONI, A. *The Alleged Diagnostic Value of the Specific Reaction of the Urine in Cancer.*

JULY, 1913.

1. *PUNTONI, V. *Some Cultural Variations of the Cholera Vibrio.*
2. MONTANARI, A. *Stoffel's Operation in a Case of Painful Secondary Contraction from Hemiplegia.*

1. Puntoni describes, and illustrates with two excellent plates, interesting cultural variations in three strains of cholera spirilla obtained respectively from the Bologna and Naples epidemics of 1911 and from St. Petersburg through the Pasteur Institute at Paris. [R. M. G.]

AUGUST, 1913.

1. PUNTONI, V. *Disturbances of Cutaneous Function as a Cause of Gastro-Intestinal Lesions.*
2. BOSCHI, E. *Further Observations on Peptic Ulcer and Especially on Its Attendant Painful Phenomena.*
3. *SANTINI, C. *Experimental Researches on Gas Embolism Following Insufflation of Air into the Bladder.*
4. BONAZZI, O. *Some Observations on the Etiology of Parotitis.*

3. In the *Journal of Urology* for January, 1913, Nicolich and Marion published each a case of fatal air embolism following inflation of the bladder prior to suprapubic prostatectomy. To determine the route by which the air could have entered the circulation, Santini performed twelve experiments on dogs, which he reports and from which he derives the following conclusions:—

(*a*) A healthy bladder will burst from high pressure before injected air will enter the ureters.

(*b*) To force air into the ureters it is necessary to injure the muscular fibres which reinforce the posterior wall of the ureter in its intravesical course.

(*c*) By injecting air directly into the ureters it is possible to make it enter the renal parenchyma so as to produce gas embolism.

(*d*) The air traverses the collecting tubules and the absorption zone between the medulla and the cortex.

(*e*) A minimal pressure, however, is sufficient to force the air through a vesical vein into the inferior cava and right heart.

(*f*) In gas embolism from insufflation, therefore, the route is probably through veins opened by lacerations of the mucosa. [R. M. G.]

SEPTEMBER, 1913.

1. GAVINI, G. *A Case of Pigmentary Urticaria of the Adult.*
2. PAZZI, M. *From the Obstetrico-Gynecologic Field to the Frontiers of Pediatrics and Rational Eugenics. (Preliminary Note.)*

OCTOBER, 1913.

1. *LUSSANA, F. *Influence of Alanin on the Biliary Secretions.*

2. BUSI, A. *The Radiologic Index of the Cranium.*
3. *BONAZZI, O. *A Peculiar Lesion in Reapers.*

1. Lussana's last work is a contribution to the knowledge of the content of amino acids in the organism. All interested in this subject will regret the untimely death of this promising young investigator.

3. Bonazzi has observed that, from the nature of the motions required in their work, reapers are subject with great frequency to acute synovitis of the joints of the thumb and of the extensor tendons of the left hand. This condition, therefore, he regards as an occupation disease. [R. M. G.]

IL POLICLINICO.

SEPTEMBER, 1913.

MEDICAL SECTION.

1. PUNTONI, V. *The Inagglutinable Vibrios, Their Relation to the Cholera Vibrio and Their Importance in the Etiology and Prophylaxis of Cholera.*
2. DE SANDRO, D. *The Amylaceous Bacteria of the Human Intestine.*
3. *FILADORO, P. *Syphilitic Pulmonary Alveolitis with Anthracosis—A Clinico-Histologic Study of the Etiology of Anthracosis.*
4. PONTANO, T. *The Relation Between Serum Diseases and Anaphylactic Phenomena.*
5. VIGANO, L. *The Thermoprecipitins of Micrococcus Melitensis.*

3. Filadoro reports a fatal case of pulmonary syphilis with anthracosis, giving in detail the clinical history and gross and microscopic autopsy findings. He is convinced that anthracosis is a secondary phenomenon. In the case reported it was secondary to syphilitic broncho-alveolitis and interstitial pulmonitis. The inflammatory reaction round about the grains of carbon is a mechanical process, such as always occurs about fractures. [L. D. C.]

SURGICAL SECTION.

1. LEOTTA, N. *Wounds of the Heart. (To be continued.)*
2. *SCALONE, I. *A Process for the Production of Vasal Stenosis.*
3. COMOLLI, A. *Abnormal Evolution of the Peritoneum, of the Primary Umbilical Loop, and of the Common Mesentery.*

2. Scalone describes in detail the technic of his method of producing permanent stenosis of large vessels in the treatment of aneurysm. This description should be read in the original, as it cannot well be abbreviated for abstract. It seems to be a contribution of genuine value to vascular surgery. [R. M. G.]

Obituary.

THOMAS MORGAN ROTCH, M. D.

IN the death of THOMAS MORGAN ROTCH, Professor of Pediatrics in the Harvard Medical School, March 9, 1914, the profession of medicine, Harvard University, and a large number of patients and personal friends, have sustained a grievous loss. Dr. Rotch, for many years the leading specialist in the diseases of children in New England, was born in Philadelphia on December 9, 1849. His father was Rodman Rotch of New Bedford, and his mother Helen Morgan of Philadelphia. His great-grandfather, Samuel Powel Griffiths, was a prominent physician in Philadelphia, holding the professorship of Materia Medica in the University of Pennsylvania from 1791 to 1796.

Dr. Rotch was graduated from Harvard College in 1870, and, having chosen medicine as a profession, entered the Harvard Medical School in the autumn of the same year. While in the school he took the first prize of the Boylston Medical Society. He was appointed one of the house physicians of the Massachusetts General Hospital in the autumn of 1873, and took his medical degree in 1874. Immediately after his graduation he went to Europe to complete his medical education. His studies were especially carried on in the universities of Berlin, Vienna, and Heidelberg, and after an absence of two years he returned to America, settled in Boston, and began his life's work in the practice of medicine.

At this time there was no physician in New England whose practice was especially devoted to children, and there was practically no teaching at Harvard in children's diseases. From the very beginning of his medical career Dr. Rotch evinced the greatest interest in and enthusiasm for the promotion of all knowledge pertaining to children. For the past thirty-eight years he labored unceasingly to increase this knowledge, and his investigations, writing, and teaching have given invaluable additions to this branch of medicine. His constant endeavor was to convince the American people that too little thought and practical attention have been given to the early years of life.

Dr. Rotch's principal life work was the building up in the Harvard Medical School of a department devoted to children. He was convinced that the anatomy, physiology, and pathology of early life differed so greatly from those of adult life, that special teaching of this subject was of the highest importance in medical education. His chief interest was in the organization and efficiency of the pediatric department of Harvard University. In 1888, the university established a chair for the diseases of children especially for Dr. Rotch. His title later was changed to Professor of Pediatrics.

For the past twenty years Professor Rotch was much interested in developing the work of the Infants' Hospital, the first hospital in this country to admit patients restricted to the first two years of life. Dr. Rotch always believed that babies should be cared for in a hospital entirely separate from children and from adults. In this hospital he elaborated one of the great works of his life, the system of percentage feeding, which has made his name well known in Europe as well as throughout America.

In 1902 Professor Rotch was invited to England to address the Children's Section of the British Medical Association on "The American

methods of modification of milk in the feeding of infants," presenting his pioneer work on this subject. This resulted in the establishment of a milk laboratory in London and in the adoption of the percentage method of feeding in England, especially in the London Infants' Hospital, of which at that time he was made consulting physician. Professor Rotch was senior physician of the Children's Hospital and of the Infants' Hospital, and was also medical director of the Infants' Hospital. He was consulting physician to the Boston City Hospital and physician emeritus to the Boston Dispensary.

He has held the positions of president of the Suffolk District Medical Society, president of the American Pediatric Society, president of the New England Pediatric Society, president of the Boylston Medical Society, and councillor of the Massachusetts Medical Society. He was also a member of the Association of American Physicians and of the American Medical Association.

After seventeen years devoted to the study of children and to teaching in the hospital wards and in the Medical School, Professor Rotch published the results of his investigations in a large illustrated work on the Diseases of Children which under the title of "Pediatrics" has since been used as a Harvard textbook. This book had a wide circulation and was accepted as a standard both in America and in England. Of late years Dr. Rotch did a good deal of work developing the use of the Roentgen ray in connection with children. As a result of this work in 1910 he published an illustrated book on "The Living Anatomy and Pathology of early Life as shown by the Roentgen Method." Dr. Rotch has covered in his writings the entire field of early life, always striving to keep before the public the truth that it is the study and practical scientific care of this period of life which produce the best results for good citizenship at a later period.

In 1874, Dr. Rotch married Helen Rotch, the daughter of William J. Rotch and Emily Morgan of New Bedford. They had one son, Thomas Morgan Rotch, Jr., born on May 21, 1878. Dr. Rotch's only son died on March 13, 1902, in less than a year after taking his A. B. degree from Harvard University. The Thomas Morgan Rotch, Jr., Memorial Building of the Infants' Hospital has just been completed and opened. A portion of the funds were contributed at the time of the young man's death by his friends and those of his parents. This hospital, which forms one of the group of buildings surrounding the Harvard Medical School and which is probably the most perfect infants' hospital building in the world, was the chief interest of Dr. Rotch's last years. It remains as a monument to his genius in the planning of details, and is designed not only to be a hospital perfectly adapted to the care of babies, but also to be an educational centre for students, physicians, and the laity in connection with everything pertaining to infants.

All those who came into contact with Dr. Rotch in his life work were impressed with the breadth of his views and his devotion to his profession. He made the teaching of Pediatrics a vital part of medical education. He possessed a remarkable power of carrying out his purposes even against opposition, and his purposes were always big purposes. He was a man of the most untiring energy and perseverance with remarkable genius for organization. His ideals were always high ideals and his aims were always large aims. He looked always far ahead, planning for the future.

EGBERT LE FEVRE, M.D.

Dr. Egbert Le Fevre of New York, dean of the faculty and professor of therapeutics and clinical medicine in the University and Bellevue Hospital Medical College, died on March 30 from scarlet fever, after an illness of only four days. Dr. Le Fevre was born at Raritan, N. J., on October 29, 1858, and his father, the Rev. James Le Fevre, who was one of the trustees of Rutgers College, is still living. He was graduated from Rutgers in 1880, and from the medical department of New York University in 1883, and in 1910 each of these institutions honored him, Rutgers conferring upon him the degree of ScD., and New York University that of LL.D. He served as interne at Bellevue Hospital, and three years after completing his service there was appointed clinical lecturer on the practice of medicine in the University medical school. When the Bellevue school was united with that of the University he was appointed to the professorship held up to the time of his death. He served successively as visiting physician to the City Hospital and Bellevue Hospital, and was made consulting physician to St. Joseph's Hospital for Consumptives and the Red Cross, Beth Israel, Nassau, Nyack, Mount Vernon, and North Hudson Hospitals. He was also the author of an excellent work on physical diagnosis. Dr. Le Fevre was not only highly esteemed on account of his professional attainments, but greatly beloved for his personal worth, and on the day that his death was announced eloquent tributes to his memory were paid in the chapel of the university by Chancellor Brown and by the chancellor emeritus, Dr. MacCracken.

Miscellany.

INTERNATIONAL SURGICAL ASSOCIATION.

The fourth congress of this Association will be held at the Hotel Astor in New York City lasting four days, beginning Monday, April 13,

1914. This is the first time that the congress has ever had a meeting outside of the city of Brussels, where the first one was held in 1905 and repeated every three years. The membership of the Association is limited to a certain number from each country. The membership in the United States is about one hundred. The president of the fourth congress is Professor Depage of Brussels, Professor Willems of Ghent is president of the international committee, and Dr. L. Mayer of Brussels is the general secretary. The local secretary is Dr. J. P. Hoguet, 40 East 41st Street, New York City, and the American committee is composed of Dr. Roswell Park (deceased) of Buffalo, Dr. L. L. McArthur of Chicago, Dr. C. L. Gibson of New York City, and Dr. R. H. Harte of Philadelphia. These last three, with the addition of Dr. Rudolf Matas of New Orleans and Dr. R. G. LeConte of Philadelphia constitute the committee designated to represent the American Surgical Association in making preparations for the entertainment of the foreign members.

The program is limited to the consideration of three main topics:—

1. "Gastric and Duodenal Ulcers." Introduced by papers by De Quervain of Basel, Hartmann of Paris, Lecone of Paris, Mayo of Rochester, Minn., Moynihan of Leeds, and Payr of Konigsberg.

2. "Grafts and Transplantations." Introduced by papers by Morestin of Paris, Villard of Lyons, Ullman of Vienna, Lexer of Jena, and Carrel of New York.

3. "Amputations." Introduced by papers by Witzel of Dusseldorf, Ceci of Pisa, Kusmik of Budapest, Binnie of Kansas City, Durand of Lyons, and Ranzi of Vienna.

After the close of the congress, Thursday, April 16, most of the foreign members will make a tour of other cities, the itinerary including Philadelphia, Baltimore, Washington, Chicago, Rochester, Minn., Montreal, and Boston. The foreign members have been invited also to attend the session of the American Surgical Association held in New York at the Hotel Astor April 9, 10, and 11, and many have signified their intention of arriving on the *Imperator*, due April 9.

MEETING ON CANCER.

THE American Society for the Control of Cancer announces a public meeting to be held on Friday evening, April 10, at 8.30 o'clock at the New York Academy of Medicine, 17 West 43rd Street. Final arrangements for a symposium on the nature and control of cancer have been made.

Dr. Clement Cleveland, vice-president of the Cancer Society, will act as chairman of the meeting, and the discussion will be opened by Dr. William H. Mayo, the eminent surgeon of Rochester, Minn., and president of the American Surgical Association, which will be in session in New York City during the week.

Frederick L. Hoffman, LL.D., statistician of the Prudential Insurance Company, who will shortly publish the most thorough statistical study of cancer which has yet been made in America, will present the latest evidence as to the prevalence of this disease in New York City, in the state, and in the country, and will discuss the possibility of controlling the death-rate by educating the public in regard to the symptoms and early recognition and treatment of cancer, as has been done with conspicuous success in Germany.

Professor Francis C. Wood, M.D., director of cancer research for the George Crocker Special Research Fund of Columbia University, will read a paper on "The Nature of Cancer and its Cure." Dr. Wood is in charge of the cancer research laboratory recently built by Columbia University at 116th Street and Amsterdam Avenue.

"The Control of Cancer from the point of view of the Cancer Commission of Harvard University," is the subject chosen by Dr. J. Collins Warren of Boston, professor emeritus of Harvard University, and chairman of the Harvard Cancer Commission. Notable improvements in the treatment of cancer, especially by means of radium, have recently been described in the annual report of the Harvard Commission and are in use under its direction at the Huntington Memorial Hospital of the Harvard Medical School. Dr. Warren is also a trustee of the American Society for the Control of Cancer.

The meeting will be open to the public without cards of admission and there will be no reserved seats.

Correspondence.

THE MASSACHUSETTS MEDICAL SOCIETY.

COMMITTEE ON STATE AND NATIONAL LEGISLATION.

BOSTON, April 3, 1914.

Mr. Editor: The following is the brief of the Committee of the Massachusetts Medical Society on State and National Legislation regarding the very important legislation that is proposed in the Report of the Commission of Economy and Efficiency. Every physician should inform himself regarding the proposed legislation and do what he can to interest his friends in the matter.

Very truly yours,

ARTHUR K. STONE, *Secretary.*

44 Fairfield St., Boston.

The Committee of the Massachusetts Medical Society on State and National Legislation wish to register with the Ways and Means Committee their emphatic protest against the conclusions of the State Commission of Efficiency and Economy in their recent report to the Governor.

The committee is sure that to abolish the Boards having in charge the varied interests of the State wards would be a calamity. The complex problem of

caring for the sick, the mentally defective, and the criminal, requires subdivision and specialization of effort to achieve good results. The committee believes that the long-standing policy of the State of Massachusetts to care for its wards by means of unpaid boards of trustees, who can devote their time and ability to the study of the immediate problem of their particular institution, is a wise one, and has resulted in Massachusetts being in the fore-front of the states in the general intelligent treatment of its philanthropic problems. No single commissioner or small group of men could control all of this vast and varied sociological activity to advantage. Individuals have accepted membership in these unpaid boards chiefly because of an original interest in the peculiar class of persons whom their special board serves. Most interested in the feeble-minded are less so in the blind; those caring especially for dependent infants are more indifferent to prisoners or sufferers from tuberculosis. By long service on their respective boards, many have obtained a high degree of *expert knowledge* which is bound to be of great use to their beneficiaries. To abandon all these benefits, and to put all sorts and conditions of state wards under one central bureau, is to lose enormously in the helpful efficiency of our state charities, even if there were a small saving in the amount of money expended, which our committee doubts would happen. The financial saving would have to be far larger than it is likely to be to counterbalance the dozen or more new, salaried officers whom the bill provides for. And we believe the way the money is spent,—in other words, the expert intelligence employed in its spending,—is quite as important as the mere question of the amount spent.

The committee is further of the opinion that the assumed economies which would be carried out under the proposed machinery would not materialize. Any large institution can probably purchase as cheaply, and, what is of as much importance, have what is adapted to its particular needs, as could a large central purchasing agency, with all the intricate machinery of management which would be necessary to insure honesty and provide for the rapid distribution of materials to the various institutions. This doubtless could be accomplished, but no group of five men paid the proposed salaries could develop such a plan as would work efficiently for a great state like Massachusetts. In addition, the wants of the institutions are so varied that it would doubtless occur that there would be great waste of materials which did not meet the exact requirements of the superintendents; and no mere purchasing agency could be convinced that the special requirements were necessary. Even in the matter of building, the needs of the institutions are so different that no absolute standard of construction is either possible or desirable.

The committee believes that much can be done in a helpful way to standardize methods of accounting, to suggest certain standard methods of building, heating, and ventilation, and to encourage and help overworked superintendents by giving them proper assistants to aid them in their work. It should be recognized that some men are specially good administrators, and consequently should be given specially good clinical assistants; others are specially good in devising plans for the improvement of the persons entrusted to their care, and such men should have specially good administrative assistants.

It must be remembered in any attempt to standardize our institutions, that this state work has been going on for half a century, and that it has not been possible to foretell because of the enormous increase in population, the great complexity of the problems arising from the rapid growth of the urban population. In some cases where seemingly wise plans for the development of the institutions have been made, these plans have not been accepted by the legislatures and make-shift plans have had to be substituted, which in the long run have entailed additional expense.

Wise, helpful, constructive criticism of the institutions will undoubtedly do much to make for general economy, but this committee is quite sure that the plan proposed is destructive in its nature and makes for neither efficiency nor economy.

REGISTRATION OF NURSES: A REJOINDER.

BOSTON, MASS., March 30, 1914.

Mr. Editor: We are all in accord with Dr. Cook's hope "that the physicians of Massachusetts will post themselves thoroughly as to the present tendencies in the registration of nurses," but some of us cannot endorse the implied criticism that the needs of the well-to-do as against the needs of all classes, inspires the motive actuating the effort in behalf of the measure under consideration.

An analysis of Dr. Cook's article, made up largely of six quotations, seems to show that his conceptions of the practical working of the proposed legislation, would be to endow the Board of Registration of Nurses with a power which might imperil the existence of some of the training schools for nurses, and thereby might curtail the education of a sufficient number of nurses to meet the requirements of the people. He intimates that the members of the Board of Registration of Nurses, might use this power in an arbitrary and unjust manner and, therefore, should not be given this weapon to be used in dealing with inferior schools. If his argument should be carried out, then no discretionary powers should be given to any public officials, and every board should have absolute standards to govern its actions, and be made to adhere rigidly to rules made by a Legislature composed largely of people who cannot intelligently deal with problems which individual members may not have studied.

The trend of modern effort seems to be to study all educational methods, and to eliminate the weak or poorly equipped schools, both because the product of the inferior school is undesirable, and also especially because the school which advertises to give a good training and does not do so, is a fraud. Those who have investigated this problem, know that many young men and women have been induced to spend money and years of the best part of their lives in attendance at institutions where the published promises have not been kept.

Does the objector to this legislation, want these frauds, some of which are medical schools and some of which are training schools for nurses, to continue? Does he want imperfectly trained nurses with low moral and professional standards, to be placed before the people of this state simply because the demand for nurses is not fully met?

Have not this eminent physician and his associates, enough influence to induce the Governor to take cognizance of any pernicious activity on the part of the Board of Registration of Nurses?

We all confidently hope that there will be developed a nursing scheme which will provide for the needs of everybody, but in the meantime, it does not seem possible that the proposed legislation, which is only one step in the process of evolution, will be any barrier to progress. Very truly yours,

W. P. BOWERS, M.D.

REGISTRATION OF NURSES: ANOTHER REJOINDER.

BOSTON, March 31, 1914.

Mr. Editor: At the risk of being tiresome I am impelled to reply to Dr. Cook's letter in the JOURNAL of March 26th.

The nurses who are working for House Bill No. 1186 will unite with Dr. Cook in earnestly requesting the physicians of Massachusetts to post themselves thoroughly as to the present tendencies in the registration of nurses.

The writer of one of the letters from which Dr. Cook quoted is Dr. Hornsby, Editor of the *Modern Hospital* and was superintendent of the Michael Reese Hospital in Chicago. Dr Hornsby very kindly sent me a copy of his letter to Dr. Cook so that the nurses might know just what his criticisms were of the law in Illinois, as well as the bill that is now pending in Boston. In regard to the Illinois law he writes the following—not quoted by Dr. Cook:

"You will note also Section 2, line 9, that the board has the right of inspection of hospitals, presumably for the purpose of seeing that the training of nurses is adequate. In most cases the law has worked out all right in this respect . . .", he then cites one instance quoted by Dr. Cook at the hearing in the State House, where the inspector did not use good judgment. He then goes on to say "but on the whole our board members have been extremely sensible and the law seems to be working out all right."

This testimony from a gentleman in Dr. Hornsby's position in Illinois seems to warrant some encouragement to those who are working in other states for similar legislation. He closes the discussion in his letter as follows:

"But I believe most of this controversy is academic rather than vital for immediate purposes, because we have in the leadership of the nursing profession a group of sane, intelligent women who are quite as anxious that proper conditions should prevail as the medical profession could be, or the public, or the administrators of hospitals, and it is my experience that even the most divergent views in this controversy about nursing are apparent rather than real. We are not all of us at exactly the same point in the road of progress and consequently we do not see things from exactly the same angle, but we are going in the same direction, are headed for the same goal and we are all using the same make of compass, so I don't think we are going to get very far apart."

"As a matter of fact, nursing ideals and the qualifications of our present day nurses have improved so vastly in the last few years, under the present leadership in that profession, that it seems to me the whole problem is in pretty safe hands"

I am

Faithfully yours,

SARA E. PARSONS. R.N.,
Superintendent of Nurses.

NOTICES.

MASSACHUSETTS GENERAL HOSPITAL: A surgical meeting open to the medical profession will be held at 8.15 p. m., on April 10th, in the lower ampitheatre of the Out-Patient Department. Entrance on either Blossom or Fruit streets.

Dr. Daniel F. Jones will present a "Report on the Surgical Treatment of Cancer of the Rectum since 1900."

SOCIETY NOTICES.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—The annual meeting of the Society will be held at the American House, Boston, on Wednesday, April 15, 1914, at 11.00 a.m. The annual oration will be delivered at 12.00 o'clock, noon, by Dr. Charles D. McCarthy of Malden. Subject: "Medicine and Social Evolution."

Dinner will be served at 1.00 p. m.

LYMAN S. HAPGOOD, *Secretary.*

APPOINTMENTS.

DR. WILLIAM E. CHENERY has been appointed Chief of the Nose and Throat Department of the Forsyth Dental Infirmary for Children.

The following gentlemen have received and accepted appointment to the staff of the Forsyth Dental Infirmary for Children:—

CONSULTING SURGEONS, Hugh Williams, M. D.; F. B. Lund, M. D.; Hugh Cabot, M. D.; H. H. Germain, M. D.

CONSULTING PHYSIOLOGIST, George Tarr Ney Dearborn, M. D., Ph. D.

CAPTAIN ARTHUR N. TASKER, Medical Corps, United States Army, has been selected as lecturer on tropical medicine at the Long Island College Hospital. This is a new chair recently established by the faculty of the school.

RECENT DEATHS.

DR. WALTER A. HAYNES, a dentist of Boston, died on March 28 at Revere, Mass. He had served for many years on the Revere board of health. He is survived by his widow.

DR. CHARLES EMERY ROWELL, who died on March 29 at Stamford, Conn., was born in Concord, Vt., on May 2, 1849. He graduated in 1875 from the New York Homeopathic Medical School, and for five years practised his profession in New Hampshire before removing to Stamford. He served as mayor of that city in 1910, having previously been its coroner and a member of the local board of health. He is survived by his widow and by three sons.

DR. GEORGE P. COOKE, who died on March 22 at Milford, Mass., was born in 1850. He graduated from the Harvard Dental College in 1869, and since that time had practised in Milford.

DR. A. WALDO FORBUSH, who died recently in Somerville, Mass., was born at Westminster, Mass., on Aug. 11, 1851. After graduating from Westminster Academy, he received the degree of M.D. in 1881 from the Eclectic Medical College, New York. He practised successively in Charlestown and in Somerville. He was a member of the Massachusetts Homeopathic Medical Society, and of the Massachusetts and Boston District Eclectic Medical Societies. He is survived by his widow.

DR. CHARLES LYMAN HODGKINS, who died recently in Park Falls, Wis., was born at West Roxbury, Mass., in 1870. He received the degree of M.D. from Georgetown University. During the Spanish War, he served as surgeon of the Seventeenth United States Regiment. Subsequently he practised successively at Castleton, Vt., Cotter Hill and Memphis, Tenn. He also worked for a time as sanitary engineer in Ecuador. He is survived by his widow.

DR. JULIA A. MARSHALL, of Norfolk Downs, Mass., died at Boston on March 26. She was born in 1841.

DR. VINCENT HAMILL, who died of heart disease recently in New York City, was born at Phoenix, N. Y., in 1873, the fourth generation in the direct line of a family of physicians. He attended Cornell University, and received the degree of M.D. from the Buffalo (N.Y.) Medical College. He is survived by his widow.

DR. JOHN WALDO JOHNSON, who died at Boston on March 24, was born on June 14, 1856, in South Framingham, Mass. He graduated from the Framingham Academy, and received the degree of M.D. in 1877 from the Harvard Medical School. He was a Fellow of The Massachusetts Medical Society. He is survived by his widow.

DR. JOSEPH F. NEE, who died recently in South Boston, was born at Scituate, Mass., in 1880. He graduated from Georgetown University in 1904, and since that time had practised dentistry in South Boston.

Original Articles.

SOME PROBLEMS IN NEPHRITIS.*

By Horace D. Arnold, M.D., Boston.

During the past few years much attention has been given to the study of nephritis, both abroad and in America. Experimental nephritis in animals has taught us much in regard to these obscure conditions and will give us even more valuable information in the future. A number of new ways have been devised for studying the functions of the kidneys, and some of these are easily applicable to patients. In many other lines of investigation progress has been made. Enough has been done to show us that our old classification is unsatisfactory, and that many of our ideas were erroneous. The solution of many of the problems, however, has not been reached. The effect on the general practitioner has been to unsettle many of his convictions without giving him definite and reliable information to take their place. Have these investigations any practical bearing on the diagnosis, prognosis and treatment of nephritis? That is the question that the general practitioner asks,—and he asks it sometimes with some impatience.

It is not the purpose of this paper to give a complete answer to this question, for our knowledge on this subject is not yet complete enough to warrant definite conclusions. Neither will the attempt be made to make a systematic summary of our present knowledge and views of nephritis. This could be done properly only in a monograph,—not in an ordinary paper before a medical society. It has, however, seemed worth while to present to you some personal experience with some of the problems of nephritis, and to show to what extent these functional tests and other methods of investigation have been of value in dealing with these problems. Only a part of the field will be touched upon. Single typical cases will be used in the way of illustration, rather than any attempt to establish a point through the statistical compilation of cases.

The cases here presented belong mostly to the general class of cardio-renal cases, in which the condition of the kidneys is usually spoken of as chronic interstitial nephritis. This is a very comprehensive class, including cases that vary widely as to their cause and equally widely in their manifestations. In a large majority of these cases, as seen clinically, the cause of the disease cannot be definitely determined. In a number of cases the writer has been of the opinion that the most reasonable explanation lay in an excess of nitrogen in the diet.

In seeking an etiology for a given case of nephritis, we may consider the possible causes under three heads. 1. Microörganisms, which by locating in the kidney substance cause an inflammatory reaction. 2. Toxins, which may cause an inflammatory or degenerative reaction, depending on the kind and the strength of the toxic substance. 3. Circulatory changes, including both mechanical changes in the general or the renal circulation, and alterations in the vessel walls. In the class of cases which I attribute to an excessive amount of nitrogen in the food, the infections of the kidney may be ruled out, the circulation is essentially normal, and arteriosclerosis does not exist to a sufficient degree to cause definite degeneration of the renal cells. We must, therefore, look for our explanation in some toxic substance.

In these cases toxins from micro-organisms may be ruled out, except those which may be produced within the intestinal canal, and these may be disregarded practically if the bowels are kept freely open. Toxic substances from outside, such as lead and alcohol, have not been taken. We are, therefore, reduced to the consideration of toxic substances produced within the body by metabolism. We know that the chief function of the kidneys is to eliminate the products of nitrogenous metabolism, and that such substances, when not removed, act as poison to the system. If in sufficient amount, they produce the condition known as uremia.

According to the theory advanced above, the continued excessive ingestion of nitrogenous food (protein) taxes the functional power of the kidneys. An excess of nitrogenous waste material in the circulation may well be irritating to the kidneys, as it is to other organs and tissues. It is recognized that one such product, uric acid, does have such an effect, if in excess. Where there are no manifestations of gout, but a known excessive ingestion of protein, it seems probable that the trouble is due to an excess of some other nitrogenous waste product or products, whose identity is as yet unrecognized. If this is true, then the dictum, "Spare the kidneys by reducing the amount of protein in the food" is of great value as a preventive measure against nephritis, as well as the most important method of treating the disease when it has once been established. The following case illustrates this view.

Case 1. Male, 46 years, married, real-estate dealer. Heredity exceptionally good; from a long-lived family. Had always been in robust health; no venereal disease; no alcohol; tobacco in moderation. His habits were regular; he was an active business man, but without unusual business strain. There were none of the etiological factors usually spoken of in connection with chronic interstitial nephritis, but he was a hearty eater and habitually ate an excessive amount of meat. This, in my opinion, was the reason why at the age of 46 he showed an early stage of Bright's disease.

He was first examined in the spring of 1900. The urine showed the faintest possible trace of albumen and a few hyaline casts,—nothing else abnormal. The heart was moderately enlarged. The

* Read at a meeting of the Medical Section, Suffolk District Medical Society, January 21, 1914.

pulse was rapid,—100, and increasing to 112 on slight exertion,—and it showed high tension. No apparent arteriosclerosis. He complained of rapid heart action, nervousness, general malaise, and loss of appetite. This case would ordinarily be classed as one of primary chronic interstitial nephritis. He was placed on a somewhat restricted protein diet; he improved rapidly, and was not heard from again as a patient until June, 1905.

In June, 1905, he consulted me for a cold. It was found that the Bright's disease was in a much more advanced stage, although cardiac compensation had kept him relatively free from symptoms. After following the diet directions of 1900 for about a year, he had felt so well that he abandoned the restrictions and began to eat meat freely again. He was again placed on a low protein diet, with meat carefully restricted, and did very well until he had a retinal hemorrhage, about Jan. 1, 1907. He then consulted an oculist, who told him of the retinal hemorrhage and also stated that he had "advanced Bright's disease."

While this statement was true, the man's temperament was such that it was inadvisable to let him know how serious his condition was. I had spoken only of "kidney trouble" in terms serious enough to secure his thorough co-operation in dietetic treatment. He now became exceedingly worried and was unmanageable. He frantically tried one treatment after another that was reputed to "cure" Bright's disease. He abandoned each when it failed after a short trial, and sought my advice only at intervals. He grew rapidly worse, went abroad, against my advice, to consult European "specialists," and barely got home alive. He died in the spring of 1908 at the age of 54 years. No autopsy was allowed, but clinically it was a typical case of chronic interstitial nephritis. His death was due more directly to circulatory failure than to renal inefficiency, although at the very last there was a mild uremic condition.

One of the definite problems in chronic nephritis is the question of how much to tell patients about their condition. There can be no rigid rule. Each case must be judged on its own merits. Tranquillity of mind and a hopefulness for benefit, if not for a cure, are valuable aids to other forms of treatment. To most people the term "Bright's disease" means a warrant for a speedy death. The straight question, "Have I got Bright's disease?" is a hard one to answer, but it can generally be parried, or the affirmative answer can be so explained as to avoid the terror which people commonly associate with the name.

In this case the oculist made a mistake in telling him bluntly that he had "advanced Bright's disease." He added to his mistake by recommending an extremely limited diet, based chiefly on a certain kind of bread. This diet was, to be sure, very low in protein, but it was entirely inadequate for proper nutrition. When he returned to my care after a short interval, he had lost markedly in weight and strength, and the compensation of his heart was badly broken because of poor nutrition. This was the beginning of a rapid decline. As soon as his heart was somewhat improved he rushed off to one of the "water cures," and speedily broke the compensation again by overloading his circulation with large quantities of fluid. And so he went from bad to worse, and finally squandered what little strength he had left in a trip to Europe in the hope of getting better advice.

CASE 2 illustrated this problem, as well as demonstrating that our ordinary prognostic rules do not always hold true. I believe this case also was due chiefly to a high protein diet, although arteriosclerosis entered into the problem to some extent. When first treated he was 60 years of age. He had a good deal of arteriosclerosis. The urine was characteristic of chronic interstitial nephritis, as were also the cardio-vascular changes. He had just suffered a hemianopsia, which was apparently due to a slight cerebral hemorrhage. The prognosis as to duration of life would ordinarily be given as a very few years at most, yet this occurred fifteen years ago, and the patient today is considered a very well-preserved man for seventy-five years of age. He really considers himself too well to be under a doctor's care. He does not know to this day that he has any serious kidney trouble and he has lived comfortably and enjoyed life. His temperament is such, however, that if he had known the exact conditions he would have worried himself into his grave in short order.

Fifteen years ago a moderate regulation of his diet and the establishment of a regular regimen was sufficient to restore him to relatively good health. Ten years ago he had very mild uremic symptoms, and the dietary restrictions were increased. In the early spring of 1910 he again had a mild uremic attack, but refused to regard his condition as more serious than a "slight indigestion" until in June of that year he had a severe uremic attack. Since then he has followed the directions about diet very faithfully, and has remained well for three and one-half years. Except for mild cardiac stimulation and an occasional laxative pill, he has had no drug treatment.

In June, 1910, when he had his last uremic attack, his blood-pressure was 210. He was placed on a diet containing 70 grams* of protein and 2000 calories daily. Under this dietetic treatment his blood-pressure soon fell to 160, and it remained between 160 and 170 for three years,—until about six months ago. It has since then been gradually rising and now ranges from 180 to 200. His cardiac compensation is still good, however, and so far it has not seemed necessary to restrict his diet any more.

This case may serve as an introduction to the very interesting problem of the relation of renal inefficiency to high blood-pressure, including the question as to whether we can affect the blood-pressure in such cases by regulating the diet.

As a result of studying a large number of cases of chronic interstitial nephritis, I am convinced that in a great many cases the blood-pressure can be materially lowered by reducing the amount of protein ingested in the food. The

* The amount of protein taken by a patient is, of course, not known accurately,—as in an elaborate metabolism experiment in the laboratory. These figures are approximate only. However, the error is probably very slight, and they are as accurate as can be hoped for in practice.

basis for this belief lies in the fact that in so many cases the blood-pressure falls after such a regulation of the diet, when apparently all other conditions as to mode of life and treatment have remained the same. In these cases the low protein diet was employed at first on the principle of sparing the kidneys, and with no expectation of any effect on the blood-pressure. Observations on the blood-pressure were made as a matter of routine study. The frequency with which there was a fall in pressure and the amount of the reduction soon attracted my attention. It does not occur in all cases, but I think we must accept as a clinical fact that such a reduction is the rule rather than the exception in the class of these cases that are able to be about and can come to the doctor's office.

What the explanation may be is another matter,—the fact remains, and it is a most important factor in the treatment of such cases. Furthermore, the reduction thus obtained is usually greater than I have been able to obtain by any other method. In my experience vasco-dilator drugs rarely give a persistent reduction of more than 10 mm. Some time ago I tabulated my results from high-frequency electricity, and found the average reduction was from 10 to 15 mm. In those cases in which the blood-pressure falls as a result of a low protein diet, reduction of 20 to 30 mm. are very common, reductions of 30 to 40 mm. are far from rare, and I have seen a reduction of 60 mm. or more in a few cases. In those cases in which the heart is laboring to maintain an adequate circulation, a reduction of the pressure by 20 mm. or more is a most valuable aid in restoring compensation.

CASE 3 is interesting from the point of view of the effect of the diet on the blood-pressure, but it also illustrates the fact that in many cases by a proper regulation of the diet, life may be prolonged in advanced cases far beyond what we have been taught to expect.

This patient was a manufacturer, and was 61 years of age when he had his first uremic attack, about the last of October, 1908. The attack was so severe that for a time his life was despaired of. I saw him first on the second day of his second uremic attack, December 26, 1908. This attack was less severe than the first one, yet he was in a state of profound stupor, from which he could be aroused only with difficulty, and into which he sank again after a few moments. This was a case of chronic interstitial nephritis, with a moderate amount of arteriosclerosis. Renal inefficiency was marked enough to result in uremia, but the cardio-vascular system was in fairly good condition. This case, however, was not actually as advanced as the uremic attacks would seem to indicate. The chief reason for this statement is that under only moderate limitation of protein he lived a little more than three years and two months after I saw him first, and finally died of circulatory failure. He was found dead in bed on the morning of March 3, 1912. Except in his acute attacks the protein in his diet was not reduced below 70 grams daily, and it was often 80 grams or more.

In explanation I would say that I have taken 90 grams of protein as an entirely sufficient allowance for a healthy person, and as the maximum that any person should take when there is any question of impaired renal functions. I have taken 40 grams of protein as the lowest practical limit to be kept up continuously in cases with marked impairment of these functions, and have fed patients for months at a time at this lower limit. In proportion to the estimated severity of the case, the protein is reduced from 90 grams toward 40 grams. That this man could live over three years on a diet averaging about 80 grams of protein daily argues against an extreme impairment of the renal functions.

There was, however, a definite limit to the power of elimination by his kidneys, and if this was exceeded for any length of time he was soon in trouble. After the attack in December, 1908, he recovered his strength so quickly and felt so well that he could not be persuaded that continued restriction of the diet was necessary. However, a relatively short break from diet regulations caused a moderately severe uremic attack on May 5, 1909. After that he was more tractable.

At another time, when he was following his diet carefully at 80 grams of protein daily, he added green peas, on his own initiative. I had allowed him a certain list of green vegetables. He decided that fresh peas in the spring might be considered a "green" vegetable, not knowing that peas contain about 7 per cent. of protein. As he was fond of peas he ate them freely every day and unwittingly increased his protein by about 10 grams daily. This was the only departure from the authorized diet, yet after about ten days or two weeks this slight excess caused mild uremic symptoms.

We had, then, in this case a pretty sharply marked limit to the amount of protein he could take in his food. If he kept below this limit, he felt, to use his own words, "better than he had been for years." If he exceeded this limit for a short time, he lost his appetite and suffered from malaise; if he continued a longer time he had definite uremic symptoms. It seems clear that these symptoms, mild or severe, were due to the retention of nitrogenous waste products in the system, due to the ingestion of more nitrogenous food than the kidneys could eliminate.

This case illustrates especially well a variation in the blood-pressure corresponding with the excess of nitrogenous waste material in the blood. In his first uremic attack the blood-pressure is reported to have been 212. In the second attack I found it 190, but this observation was made shortly after a dose of nitroglycerin, and it probably had been over 200. Under a low protein diet the blood-pressure gradually fell to 160 on the thirteenth day after the uremic attack began. He was then able to come to my office and in the following

two weeks received eight treatments with high-frequency electricity. The average fall of blood-pressure at the end of each treatment was 10 m.m., although, of course, the effect of each single treatment on the blood-pressure was largely temporary. At the end of this period the blood-pressure had fallen to 140,—a total reduction of at least 50 mm.

In the attack in May, 1909, the reduction was even more striking. The blood-pressure was highest on the third day of the attack, when it registered 230. On the fourth day, 220; fifth day, 180; sixth day, 170. At this point he was able to sit up. On the eighth day it was 140. On the ninth day he was able to go out for a short walk. On the tenth day the blood-pressure was 135, and registered the same when he came to my office on the twelfth day. Here was a total fall of 95 mm. in 9 days, with no apparent explanation except that a low protein diet allowed the kidneys to eliminate the excess of nitrogenous waste material in the blood.

During the period of about three years when he was under treatment his blood-pressure would remain between 140 and 150 if he remained on a strict diet. However, although he reported for examination fairly regularly, he repeatedly broke over his diet restrictions, and thus gave an unusual opportunity to study the relation of a varying protein diet to blood-pressure. With an increase in the intake of protein the blood-pressure rose. The rise was roughly proportioned to the excess of protein, and not infrequently reached 170 or 180. Numerous other cases have apparently shown the same relation. Incidentally I may add that I have never seen any ill-effects from any reduction of the blood-pressure that resulted from, (or accompanied?) a low protein diet. It has been held by some authorities that a high blood-pressure in chronic interstitial nephritis is a conservative process and should not be interfered with. In this class of cases, of which I have given instances, nothing but benefit has followed such reduction.

But this is not the whole story. In other cases, apparently similar, no reduction of blood-pressure followed a considerable reduction of protein in the diet. It would appear that the conditions in these two classes of cases must be materially different, and we look to the newer methods of investigation in the hope that we may gain information which will enable us to differentiate the several varieties of disease which are now all included under the head of chronic interstitial nephritis.

A little more than a year ago, Professor Folin announced new methods of blood analysis by which could be determined with great accuracy the amount of nitrogenous waste products in the blood, and also the amounts of urea, ammonia, and uric acid. These methods are too difficult and delicate to be performed by practicing physicians, but the results are of great clinical importance in some cases. Folin states that in nephritis he has found the amount of nitrogenous waste products to vary from slightly above normal to four or five times as large as normal.

In cases of pronounced or threatened uremia the amount of waste nitrogen has been very high, otherwise the amount has not seemed to correspond to any particular clinical diagnosis. He also states that in these cases he has found "no correspondence between the blood-pressure and the degree of retention of the ordinary nitrogenous products." The amounts of these various substances in the blood are expressed in figures representing the number of milligrams in 100 grams of blood. In the cases which follow the amounts found will be stated in comparison with the normal amounts.

CASE 4. Merchant, 57 years. A case of moderately advanced chronic interstitial nephritis, moderate arteriosclerosis, and myocardial degeneration. In this case alcohol was an important etiological factor. He was a hearty eater and an estimate of his ordinary diet, recorded for three days, showed a daily average of about 140 grams of protein and over 3000 calories. The output of urea was approximately 20 grams in 24 hours, which is abnormally low for the amount of protein in the food. It seemed probable that there was retention of nitrogenous waste products in this case, and a specimen of blood was taken and sent to Professor Folin for examination. The report showed the amount of uric acid to be at the upper normal limit, the nitrogenous waste nearly twice the normal amount, and the urea once and a half times the normal amount.

The amount of protein in the diet was reduced from 140 grams to 70 grams, and the calories from 3000 to 2000. On this diet he had fewer symptoms and seemed to improve. Another specimen of blood was taken for examination 26 days after the first one. The uric acid had fallen from the upper normal to the lower normal limit, the nitrogenous waste was reduced one-third, but the urea was reduced only one-tenth.

The blood-pressure at the time of the first blood analysis was 195, at the time of the second analysis it was 185, and three weeks later it had fallen below 170. This is not as striking a fall in blood-pressure as has occurred in many cases, but it is a definite drop. The patient did not return for further observation, but we learned from his family physician that after a definite improvement he became careless about his diet and had resumed his alcoholic habits. The case shows by blood analysis a retention of nitrogenous waste, as was expected, and a definite drop in its amount when the amount of protein in the food was reduced. At the same time there was a definite fall in blood-pressure. So far this is the only one of my cases of this type in which this change has been followed through two blood analyses.

Correct, in this case, would seem to be our theory of impaired excretion, the retention of nitrogenous waste, and some relation between this and the blood-pressure. I believe this is a typical case of a certain variety of chronic interstitial nephritis. I have had the blood examined in a number of other cases which failed to give any confirmation of this theory. However, any

argument on a numerical basis among these cases would not be fair, for the other cases were the ones which had failed to respond to dietetic treatment. In other words they belong in a different class. Statistical arguments are valueless unless cases that are to be compared are so selected that they belong to a sharply differentiated class.

The figures in Case 4 are as follows:

	Uric Acid.	Nitrogenous Waste.	Urea Nitrogen.	Protein in Food.	Blood-Pressure.
Normal	1-2	24-26	12-13	90 grams	150
Dec. 12, 1912	2	46	19	140 grams	195
Jan. 7, 1913	1.2	30	17	70 grams	185
Feb. 1, 1913	—	—	—	70+ grams	170—

Case 5 is interesting in several respects, and shows among other things, that one normal blood analysis does not settle the diagnosis of the case. Accurate and reliable as this test is, nevertheless it throws light on but one factor in the clinical picture. It does not necessarily invalidate other evidence, and this case shows the value of considering all the features in the case in the interpretation of the significance of the blood analysis.

This patient was a married woman of 28 years. In 1910 she had eclampsia at the seventh month of her first pregnancy. She had albumen in the urine at that time, but the urine is reported to have been free from albumen since her recovery from that illness. In 1911 she had a miscarriage at about the third or fourth month of pregnancy, but there was no eclampsia. She has not been pregnant since. Early in 1913 her appendix was removed. No renal trouble was noted at the time of this operation. In the summer of 1913 her blood-pressure was found to be 200. I examined her first on September 23, 1913.

At that time the systolic blood-pressure was found to be 240, and the diastolic pressure was 120. The heart was moderately enlarged. There was a slight mitral regurgitation. It was reported that the urine had been examined recently and found to be normal. A single specimen at the time of my examination showed no albumen, but a centrifugalized sediment showed a few hyaline casts. One week later a twenty-four hour specimen showed the slightest possible trace of albumen by the nitric acid test, and the sediment contained a number of hyaline and fine granular casts.

The case appeared to be one of chronic interstitial nephritis. There seemed to be no etiological factor except the possibility that the trouble started from some one of the ordinary infectious diseases or a tonsillitis which she had had in childhood and early youth. It seems probable that it antedated the attack of eclampsia in 1910. She was anemic, the hemoglobin being down to 60%, and she had suffered from anemia five years before. It was my opinion that the slight mitral regurgitation was due to the anemia, acting through a poorly nourished left ventricle. She had had no symptoms and considered herself well, except for slight breathlessness on marked exertion.

An estimate of the diet for four days showed an average protein intake of 56 grams, but it had varied on the different days from 41 grams to nearly 70 grams. Her attending physician had reduced her allowance of meat to small amounts, so that she was already on a low protein diet, but with rather wide variations from day to day. The twenty-four hour amount of urea was 9.4 grams. —a low amount for a diet containing about 60 grams of protein. This fact, together with the evidence of the urinalysis led me to infer that she had chronic interstitial nephritis with impaired elimination and the retention of nitrogenous waste. The blood-pressure, however, was so high that it did not seem probable that it was due solely to the amount of nitrogenous waste that would be retained from so low an amount of protein in the diet.

On Oct. 1 a specimen of blood was taken for analysis. The report showed figures for uric acid, nitrogenous waste, and urea nitrogen that were about the low normal limit. At first sight this report would seem to indicate not only that there was no accumulation of nitrogenous waste in the blood, but that there was no nephritis. However, the other evidence seemed to indicate so clearly that this case was interstitial nephritis and that probably the power to eliminate nitrogen was impaired, that I looked for an explanation for the apparent discrepancy. It then appeared that on the day when the urine was collected, the day before the blood was taken for analysis, she had taken only 41 grams of protein. It therefore seemed probable that the kidneys could eliminate the amount of nitrogenous waste from this amount of protein and that this would explain the absence of any accumulation in the blood. Therefore this condition of the blood did not necessarily exclude nephritis. Her blood-pressure at this time had also fallen to 225.

As soon as the blood had been taken for examination she was placed on a diet containing 2000 calories and 60 grams of protein. This was not a lower amount than the average she had been taking, but it was thought that she would do better on a steady diet of this sort than on the wide variations her diet had shown before. On October 10 she was ordered a capsule three times daily, which contained 5 gr. of ferrous carbonate and 1-6 gr. of extract of nux vomica. This was given for her anemia and constitutes the whole of the medicinal treatment to date. On November 14 her diet was cut to 52 grams of protein, and on December 4 it was reduced to 44 grams. On that date the hemoglobin had risen from 60 to 80%, and the systolic blood-pressure had fallen to 200, although the diastolic pressure remains about the same, 120 to 125. She was appreciably better in every respect, and this improvement and the lowered blood-pressure seemed to be the results of a low protein diet.

Meantime, on Oct. 28, she entered the Peter Bent Brigham Hospital so that I might get a report on tests of her renal functions. While there, on a somewhat higher protein diet, another analysis of the blood was made and the amount of nitrogenous waste was found to be fully double the normal figure. In other words, this patient had a definite limitation to the power of her kidneys to eliminate nitrogenous waste. When the protein intake was sufficiently low there was no accumulation of these waste products in the blood, but when it exceeded the limit of excretion these waste products promptly accumulated in the blood.

A closer study of the output of urea in the urine showed that the action of the kidneys in this respect was sluggish. It was also shown that the elimination of salt was poor. On the other hand, the water balance was practically normal, and the tests for the excretion of potassium iodide and lac-

tose were normal. The phthalein test was nearly normal.

This case would ordinarily be classed clinically as one of chronic interstitial nephritis, yet it is distinctly different from the ordinary type of this disease. By means of the blood analyses and the tests of the renal functions we are able to show this, and we have received valuable information to guide us in treatment. Her protein intake should be kept as low as 45 grams daily and the amount of salt taken in the food should be limited. That the other renal functions are normal is valuable knowledge, and it possibly warrants a better prognosis than we should ordinarily give. I do not think we have yet accounted for her very high blood-pressure. Apparently this has been influenced to a slight extent by regulating the diet, but it would seem to be chiefly due to some other factor.

Certain aspects of Case V have brought us to the consideration of the clinical tests of the renal functions. These will be reviewed very briefly, with a few words of comment. The details of the technique will not be given, for lack of time.

The phenolsulphonephthalein test is supposed to measure the general excretory function of the kidneys. It is sometimes called the "phthalein" test or the "red" test, as a matter of convenience. Up to the present time it has been used more extensively in surgical cases than in medical cases. It has established a definite place for itself in surgery, especially in reference to the question of operations on the urinary tract. If the excretory power of the kidney is sufficiently low, operative measures should be postponed, if possible, until the renal functions have been improved by treatment, or in some cases they should be abandoned altogether. The mortality in several of these operations has been materially lowered through the intelligent interpretation of the results of this test.

This test has not been employed as extensively in the study of medical cases as in connection with surgical operations. It is, of course, equally accurate for medical cases, but the interpretation of the results is not so clear. It should be used more frequently in the study of such cases, and we may hope that with the collection of sufficient data this test will have a greater value in relation to the diagnosis, prognosis, and treatment. At present we may state that the percentage of phthalein excreted is reduced in cases of nephritis, and that the degree of reduction corresponds generally to the degree of impairment of the renal functions. In threatened uraemia the percentage is usually very low. Furthermore this test sometimes indicates a dangerous impairment of the renal functions, when other evidence of such a condition is lacking. On the other hand if other symptoms indicate danger, we should not disregard the warning because the phthalein test is essentially normal. Cases have been reported in which the phthalein test was essentially normal, yet uraemia followed in a very short time. A very low phthalein test, combined with a blood analysis which shows a large amount of retained nitrogenous waste, strongly suggests the imminence of uraemia.

We are not able to infer much from this test as to the duration of life, because we do not yet know how low the phthalein test may go and yet be compatible with a renal efficiency that will sustain life indefinitely, if the diet and regimen of the patient are properly adjusted. This is especially true of cases of interstitial nephritis which are stationary or are progressing slowly. This test, however important, is but one piece of evidence, and it must be considered in relation to all the other evidence in the case. The phthalein test gives no special indications as to the treatment of cases of nephritis, except in those cases where it indicates that uraemia is imminent. Here we would inaugurate vigorous measures earlier than if we depended solely on the other indications.

We now come to the consideration of functional tests which determine the power of the kidneys to excrete certain individual substances. The substances at present utilized for such tests are water, salt, nitrogen, lactose, and iodide of potash. Information about the excretion of the first three (water, salt, and nitrogen) has a distinctly practical bearing on the problems of treatment. If the kidneys have difficulty in eliminating any of these substances, it is common-sense to reduce the amount of work for the kidneys by reducing the amounts of the substances in question.

On the other hand these tests are supposed to be of value in diagnosis, enabling us to distinguish the cases in which the glomerular functions are impaired, those in which the functions of the tubules are impaired, and the mixed forms in which both systems are involved. It is generally agreed that the excretory functions of the glomeruli are different from those of the tubules. These tests, however, are based on the further assumption that we know what these different activities are, and that we can test these individual functions by these specific substances. Here we have left the solid ground of fact (or views about which there is general agreement), and have embarked upon the sea of theory (or views about which there is a definite difference of opinion). Will our boat, the working hypothesis of these tests, prove seaworthy?

It should be noted in this connection that we know far too little about the physiology of the kidney as a whole, and less about the normal or abnormal functions of its different parts. Furthermore there is a distinct lack of correlation between the clinical observations and the autopsy findings in many cases. The autopsies generally show that we are dealing with mixed

cases by the time death occurs, where both the glomeruli and the tubules are involved, although in the more acute fatal cases one system or the other is apt to be chiefly affected. Important work is now being done in experimental nephritis on animals, but it is not yet entirely clear how far the results are applicable to the nephritides of man, which are due to toxins of a very different character. It will require much more work along all these lines before we can form really reliable conclusions. The functional tests must be studied more extensively in connection with other clinical evidence, both of these must be better correlated with autopsy findings, and some of the problems can be elucidated by animal experimentation. In the meantime the assumptions on which these functional tests are based represent the opinions of men who are leaders in the investigations along these lines, and they may be accepted as the best working hypotheses available.

According to these views water and lactose are eliminated chiefly through the glomeruli, while sodium chloride and potassium iodide are excreted by the tubules. There is less definite agreement as to the place of excretion of nitrogenous material; therefore, as far as the localization of the functional disturbance is concerned, nitrogen has less significance than the four other substances.

Inability of the kidneys to excrete lactose in a normal way seems pretty clearly to indicate an abnormal glomerular function. Cases of this sort may be divided into two classes, those which show polyuria and those which show oliguria. Polyuria is considered to be due to a hypersensitive condition of the glomerular vessels, while oliguria is due to a hyposensitive condition. The ratio of fluid output to intake determines which condition exists.

Iodide of potash seems to be excreted by the tubules, but this test is perhaps less reliable and conclusive than the other tests. Salt seems to be excreted chiefly by the tubules, but the question of the amount of salt excreted depends not only on the functional power of the tubules but to some extent on the activity of the glomeruli. Normally the tubular epithelium appears to have the power of concentrating the urine by excreting an excess of salt ingested, even if the amount of fluid ingested is not increased. If the fluid intake is increased an excess of salt would be taken care of, at least to a certain extent, even if the concentrative power of the tubules were impaired, because of the increased outflow of urine. Therefore in this test we must take into consideration both the intake of salt and of water, and the output of urine and its concentration. Furthermore in the type of abnormal glomerular action in which the vessels are hypersensitive, salt appears to act as a diuretic and to increase the amount of urine. The functional activity of the tubules as to salt excretion is, therefore, tested by adding salt to the diet in considerable amounts without increasing the amount of fluid taken. If the tubules are normal and the glomerular action is normal this excess is eliminated in a concentrated urine. If the glomerular vessels are normal or hyposensitive and the tubules are impaired there will be more or less salt retention. If the glomerular vessels are hypersensitive, the diuretic action of the salt may make the test less conclusive as to the functions of the tubules, although if the tubular function is much impaired some salt retention will probably be found under these conditions.

Bearing the significance of these functional tests in mind, we may now consider Case VI,—one of the most puzzling cases of cardio-renal disease that I have studied.

CASE 6. This man was a traveling salesman for shoes; 45 years of age. He was first examined September 3, 1912. His history gave no probable etiology for his present trouble. He had never used alcohol to any extent.

His present trouble dated from February, 1911,—19 months before I saw him. The best information obtainable about an attack which occurred at this time would seem to indicate that it was uremia accompanied by a temporary aphasia and paralysis of his right hand and arm which lasted several hours.

In November, about nine months later, he fell unconscious and had more convulsions. The diagnosis, made by a very good clinician, was again uremia. After a few days in the hospital he returned home. Since then he had been in fair health, but had not returned to business. He complained of more or less malaise, loss of strength, some headache, and occasional attacks of dizziness. There had been no dyspnea on exertion, or other cardiac symptoms. He had noticed nothing unusual about the urine, but had been obliged to pass it two or three times during the night for a good while.

Physical examination showed an enlarged heart, the left border being 2 cm. beyond the nipple line. The heart action was strong and regular. There was a short, fine, high-pitched systolic murmur at the aortic area, and a lower pitched, rougher systolic murmur at the apex. There was moderate arteriosclerosis of the peripheral arteries, and it seemed probable that the aortic systolic murmur was due to arteriosclerotic changes at the aortic valve. The other systolic murmur was characteristic of slight mitral regurgitation. Compensation was good. The aortic second sound was much exaggerated. The pulse was 100, regular, and of very high tension. The systolic blood-pressure was 275, and the diastolic pressure was 190. There was moderate edema of the eyelids and slight soakage of all subcutaneous tissues, but no edema of the lower extremities that could be ascribed to broken cardiac compensation. He had recently consulted a good oculist, who reported to me that the fundi were normal except for definite evidence of arteriosclerosis. The physical examination was otherwise negative.

A single specimen of urine at the examination September 3 showed a specific gravity of 1010, acid, a slight trace of albumen, and a few hyaline casts.

The twenty-four hour urine, two days later, showed 1440 c.c.; specific gravity, 1012; acid; a very slight trace of albumen; many hyaline and a moderate number of fine granular casts; no other abnormal constituents in the sediment.

He had been requested to record his diet for the twenty-four hours during which he collected the urine, and a calculation showed that he was taking about 2100 calories and 96 grams of protein. The output of urea was 21.6 grams for the twenty-four hours,—a smaller amount than would be expected from the protein intake. The diagnosis of chronic interstitial nephritis seemed to be definitely established. There was moderate arteriosclerosis and cardiac changes secondary to the nephritis and arteriosclerosis. With a history of what appeared to be two uremic attacks ten and nineteen months previously, and with the extremely high blood-pressure, this patient seemed to be in a very advanced stage of the disease. The cardiac compensation, however, was unusually good, and the danger seemed to be more on the side of inadequate renal elimination and uremia than in the direction of the circulation. I assumed that the high blood-pressure was probably due to retained nitrogenous waste products, and, as he was taking a diet that was too high in protein for his kidney condition, I expected a definite fall in the pressure on a lower protein diet.

In this expectation I was entirely disappointed. Further observation of this case showed that the first observation of a blood-pressure of 275 was unusually low for him. It was usually considerably above 300. The exact figures cannot be given, as the scale of the mercury manometer did not go above 300. He was first placed on a 70-gram protein diet, and this was gradually reduced until on Nov. 12 he was ordered a diet containing only 52 grams of protein. On the lower protein diet the blood-pressure was more often between 275 and 300 than above 300, but, as it was at times over 300 and as it was only 275 at the first examination, it is not clear that the lower protein diet had definitely reduced it.

In other respects, however, he was distinctly better. His pulse was generally lower, frequently down to 88. He was practically free from headache, felt stronger and more energetic, and described himself on November 26 as "better in every way." The urine improved. The amount and specific gravity remained about the same. The casts diminished and disappeared on October 8, about one month after treatment was inaugurated. The albumen disappeared on November 11. The urea fell from 21.6 grams to about 13 grams in twenty-four hours on the reduced protein diet. These conditions remained essentially unchanged until early in January, 1913.

On January 14 a specimen of blood was taken for analysis. The result was essentially normal, the uric acid, nitrogenous waste, and urea being only very slightly above the upper normal figures. Professor Folin stated that this analysis was inconsistent with the results obtained in a large number of cases of nephritis, and raised a question as to the diagnosis. It seemed possible that the reduction of the protein intake might have reduced the amount of nitrogenous waste material to what the kidneys could eliminate, and that under these conditions a normal blood analysis would be consistent with the existence of nephritis. In order to test this idea, I increased the protein in his diet from 52 to 90 grams and asked him to continue at this diet for a month, unless he became decidedly worse. Inside of a week he telephoned to say that he did not want the full protein diet, that he found it difficult to force himself to take it, and that he was not feeling as well. I asked him to do the best he could for two weeks and then report.

On February 27 the blood was taken again for analysis. It was estimated that he had taken an average of 80 grams of protein for twenty days. The blood analysis was practically identical with the first examination. The amount of nitrogenous waste in the blood had not increased with an increased amount of protein in the food. The figures of the two analyses are as follows:—

	Uric Acid.	Nitrogenous Waste.	Urea Nitrogen.	Protein in Food.	Pressure. Blood.
Normal	1-2	24-26	12-13	90 grams	150
Jan. 14, 1913	2.3	30	15	52 grams	270
Feb. 27, 1913	2.2	28	16	80 grams	295

Besides suffering a return of his symptoms to a moderate degree, as a result of increasing the protein in his diet, the urine at this time, February 27, showed a return of albumen and casts after they had been absent in a number of examinations during the previous three months. The urea, which on February 7 was 13 grams on a diet containing 52 grams of protein, was now 18 grams, on an 80-gram diet. It was demonstrated that he did not do as well on a high protein diet. He was now allowed 70 grams of protein daily for a time. On this he felt better than when he tried to take 80 or 90 grams, but not as well as on the lower diet. He voluntarily cut below 70 grams in a short time and on March 28 he was again placed on a 52-gram diet. The blood analysis showed that the increase of symptoms was not due to retained waste products.

As he was feeling well again on his 52-gram diet, I had some difficulty in persuading him to submit to further tests. However, on May 2, I induced him to allow Dr. Reginald Fitz to try the phthalein test. The elimination of the dye-stuff was 14% for the first hour, when normally it should be 50%; and for two hours it was 28% instead of nearly 70%. This test indicated a marked impairment in the elimination by the kidneys, and confirmed the diagnosis of nephritis. In addition, Dr. Fitz found albuminuric retinitis with a slight hemorrhage, which further confirmed the diagnosis. He also found the systolic blood-pressure over 300.

A short time afterwards I persuaded the patient to go into the Peter Bent Brigham Hospital, so that the other tests of the renal functions could be made. The lactose test showed some impairment of the function of the glomeruli. Whereas in 5 or 6 hours at least 60% of the lactose should be excreted, only 50% was excreted in 7 hours. That this abnormality was of the type with hypersensitive vessels was shown by a polyuria when the amount of water was increased and a diuretic action by an increase in the amount of salt.

The tabular function of the kidneys was shown to be fairly good, because the concentration of the urine was somewhat increased when extra salt was given, notwithstanding the diuretic effects of the salt, and because iodide of potash was eliminated in a normal manner. The nitrogen elimination was somewhat below normal, but this had been shown not to result in nitrogen retention on a moderately high protein diet.

The results of these special examinations may be summed up as follows: The diagnosis of nephritis was definitely confirmed. It was shown that nitrogen and salt and water could be eliminated in fairly good quantities, and the danger of retention of these substances with resulting oedema and uraemia seemed remote. In this case the vascular changes seemed to predominate and the danger would consequently lie in overtaxing the circulation. For this reason, since nitrogen and salt both stimulated the hypersensitive blood vessels, these articles should be given sparingly. The cause of the high blood-pressure was not demonstrated. The whole case seemed to be one in which vascular disease predominated over the renal condition, and was more or less independent of the nephritis.

As far as treatment of this case is concerned this investigation merely gave additional reasons for continuing the low protein and low salt diet which had already been inaugurated. As far as diagnosis is concerned, while it confirmed the diagnosis of cardio-renal disease, it reversed the diagnosis as to the predominance of the two elements, the renal and the vascular. I had assumed from the history and the evidence that the kidney functions were so seriously impaired as to constitute the real source of danger. It proved, however, that the renal functions are fairly satisfactory and that the danger will lie rather with the failure of the circulation. This investigation also offered a better prognosis than I should have dared to promise without it.

During the past summer this patient lived a moderately active out-door life on the coast of Maine. He continued his 52 grams of protein in a salt-poor diet. He called to see me at the end of November. He looked in perfect health, and said he felt better than for years. However, his pulse was 92, his systolic blood-pressure was over 300 and the diastolic pressure 190, and the left border of his heart was 1 cm. farther to the left. So far he has had no medication except occasionally a grain or two of phenolphthalein to keep his bowels open. The present indications are to continue the same dietetic regulations, to avoid anything beyond moderate exertion, and later, if necessary, use cardiac tonics when the heart begins to fail.

As we accumulate more data, we shall undoubtedly divide our cases of chronic interstitial nephritis into at least two or three clinical types. A better insight into these cases should lead to better treatment and more benefit. Even advanced cases of Bright's Disease of the ordinary type, may be benefited. If we can regulate the diet so that the nitrogenous output is within the capacity of the kidneys and the patient still gets sufficient nutrition, many of these cases may live in comfort for years longer than we have been taught to expect.

In conclusion,—what practical deduction can we draw from the consideration of the problems presented by these cases.

Cases of nephritis do better on a low protein diet, which requires less functional activity on the part of the kidneys. The degree to which the protein should be cut down depends on the degree of impairment of the renal functions. A rough estimate can be made on the basis of allowing 90 grams of protein in the lightest cases and about 40 grams in the severe or advanced cases. Intermediate grades should have an amount of protein between these extremes, varying according to the severity of the disease. If the symptoms improve and the blood-pressure falls, the functional tests are not essential; otherwise valuable information may be obtained from them, even in the present stage of our knowledge. With the accumulation of more data, the inferences that may be drawn from these functional tests will be more and more valuable.

In cases with oedema, and also in the cases in which the blood-pressure remains high although the protein in the food is reduced, the amount of salt should be reduced.

As a result of further study, we shall undoubtedly divide our cases of chronic interstitial nephritis into at least two or three clinical types.

A better understanding of these cases and a more careful study of the problems of nephritis will lead to more intelligent treatment and resulting benefit to the patient. A proper regulation of the diet,—not forgetting to provide a sufficient amount of nutrition,—will enable many of these patients to live in comfort for years longer than we have been taught to expect.

THE IMPORTANCE OF DIAGNOSIS AND TREATMENT OF PRIMARY SYPHILIS.

By C. Morton Smith, M.D., Boston.

The treatment of syphilis of the central nervous system, tabes and general paralysis is receiving widespread attention at present both in the clinic and laboratory. Syphilis was not recognized as the etiological factor in tabes and paresis until recently. These conditions were classed as para-syphilitic affections, *i.e.* syphilitic in origin but not in character. Mercury and iodides had slight control over the progress of the disease in these cases, and with no exact knowledge of how these degenerative changes occurred, it was claimed they were due to toxines or by-products of the infection and corresponded with the nerve changes after diphtheria.

Noguchi's demonstration of spirochaetes in the brain tissue of paretics and the successful inoculation of rabbits with the spinal fluid of tabetics shows beyond a reasonable doubt that

we are dealing not with the action of toxines but the direct effect of the spirochaeta pallida. However, the fact remained in regard to the slight success of the old-time treatment.

Some tabetics responded to intravenous injections of salvarsan, but with many it was inefficient and paretics were not improved. Attention was called by Camp to the fact that arsenic was not found in the cerebro-spinal fluid in cases that had received salvarsan intravenously. This is said to be due to the selective activity of the choroid plexus, which allows only certain substances to pass from the blood stream into the ventricles. Flexner's work on meningitis suggested intraspinal injections, and Swift and Ellis devised their method of preparing and introducing salvarsanized serum. Following their lead, much careful work is being done along these lines and the results already obtained amply justify a continuation of this method of treatment as the process seems to be arrested or perhaps cured in some, while other cases are relieved of distressing symptoms.

The object of this article is to emphasize the importance of early diagnosis and prompt energetic treatment, for therein lies the reasonable hope of safeguarding the patient against these serious nerve lesions already mentioned.

During the comparatively short time that salvarsan has been in use a fairly definite method of application has been developed whereby it seems possible to sterilize the individual before the nervous system has been invaded. When energetic treatment with salvarsan and mercury is begun during the early primary stage the disease can be aborted in a large percentage, if not in all cases. If treatment is delayed until the secondary stage or later, it is still usually possible, but more difficult, to bring about the desired serologic change.

Syphilis may invade the central nervous system during the secondary stage and may or may not cause clinical symptoms. Hence, Bernstein advocates an early lumbar puncture in all cases of syphilis to determine the cell content of the spinal fluid, this being a more accurate guide to cerebro-spinal syphilis than the Wassermann reaction on blood serum or spinal fluid. He also favors a routine intraspinal injection of salvarsanized serum as a precautionary measure.

There is still need of an intimate clinical knowledge of syphilis although the diagnosis of a primary lesion no longer rests on clinical examination alone. Spirochaetes can often be demonstrated in primary sores only a few days old, either by the dark-field microscope, or in stained preparations. The latter is best suited for the general practitioner as no special apparatus is needed.

Many patients are exceedingly optimistic regarding their own possible primary lesion and lose valuable time before seeking advice, believing it to be only a "cold sore" or "chafe." Further time is also lost in some cases if we can believe the patient's statement that "the doctor said it was a soft sore and did not amount to anything," and later when a roseola appeared, explained that "it had backed up into the system."

In the out-patient department of a large hospital the writer has been surprised at the small number of patients with primary syphilis or questionable lesions seeking or sent for advice or treatment. Not only does the welfare of the patient call for an early diagnosis, but the safety of the public also demands prompt recognition and healing of primary sores. Many small epidemics have been traced to an unrecognized primary lesion of the finger, lip or elsewhere. Numerous instances of this sort are on record, one of the latest being Schamberg's report of practically a dozen cases of infection about the mouth traced to a young man with a primary lesion of the lip who attended a party where kissing games were played.

There is still the same old necessity for a positive diagnosis before beginning treatment, but with the means already mentioned it is often possible to make a definite statement at the first visit. Failing to find spirochaetes the Wassermann reaction usually becomes positive three or four weeks after the appearance of the sore.

It is also important that the treatment begun early should be continued until a serologic as well as symptomatic cure is obtained. The Wassermann test is of value to the clinician as a measure of treatment, as well as an aid to diagnosis. A weakly positive reaction in a known syphilitic, or where the reaction has been strongly positive is an indication for further treatment. In a case for diagnosis, lacking history and clinical evidence, a weak reaction should be disregarded.

The treatment of early syphilis should comprise three to six intravenous injections of salvarsan given at ten-day or two-week intervals and supplemented by mercury, preferably by intramuscular injection. The effect is determined by a Wassermann test six to eight weeks after treatment has been omitted. If the test is positive the course of injections should be repeated. When such treatment is begun in the primary or early secondary stage a permanent negative test should be possible in six to nine months in the majority of patients.

By early diagnosis and active treatment we can hope to accomplish the following:—

1. Abort the disease in a large number of cases.
2. Protect the family and community.
3. Prevent the probability of transmission of syphilis to the offspring, some of whom may become a burden to the state.
4. Lessen the possibility of the so-called neuro-recurrences.
5. Probably safeguard the individual against late nerve syphilis,
6. Thus diminishing the likelihood of their becoming useless members of society, if not state charges.

Clinical Department.

A CASE OF BONE CYST OF THE OS CALCIS.

By Wm. Pearce Coues, M.D., Boston.

Bone cysts other than those found in the long bones are of such uncommon occurrence that the report of the following case is of interest. In a cursory examination of the literature on this subject, I have been unable to find a similar case.

A. L. 14 years, was seen Sept. 5th 1913.

Past History. The mother and father are living and well; one brother died in infancy of gastroenteritis; one brother and two sisters are living. One of the sisters is of a nervous temperament, with much digestive trouble. The patient's past history is not important concerning this trouble.

Present Illness. There is trouble in the other heel, the right, since last May, when he fell directly on the heel while doing gymnasium work. This foot bothered him off and on since, with considerable aching at times. The pain especially noted after walking or running. Absolutely no symptoms from the left heel, the seat of the bone cyst.

Examination showed a well nourished boy. The right heel was painful to pressure over the epiphysis of the os calcis. There was no abnormal thickening made out. X-ray of this foot showed an old separation of the epiphysis of the os calcis.



Bone Cyst.
Left os calcis. Male, 14 years.

An x-ray of the left foot was taken for comparison. This picture showed a bone cyst of the body of the os calcis. The whole of the central portion of the body of the os calcis was involved, the thinning extending down apparently quite close to the plantar surface of the bone. Immediate intervention was not advised, but observation at short intervals with radiographs for comparison with the first picture, and operation, should the slightest symptoms arise, was urged. Some two months after this the patient was heard from. The trouble had given no symptoms up to that time.

Medical Progress.

A REVIEW OF THE PROGRESS IN PATHOLOGY FOR 1913.

By S. B. Wolbach, M.D., Boston,

Assistant Professor of Bacteriology, Harvard University Medical School.

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It is hardly to be expected that notable contributions in gross and microscopic pathological anatomy will be made each year, because of the highly developed state of our knowledge on these subjects. The bulk of the work done along these lines is too highly specialized to be of general interest. Some of the most notable contributions to pathological histology, which represent many years of investigation, have been made by Mallory, in his text-book, "Pathologic Histology." Of special note are his contributions to the histology of early syphilitic lesions, trichinella spiralis, the histology and classification of tumors, infectious lesions of the heart, blood vessels and kidneys and the pathology of the liver.

The contributions in the field of experimental pathology from America are perhaps more noteworthy than those from abroad where the corresponding type of work is done in closer connection with the clinic, and in the main is represented by diagnostic and metabolism experiments upon patients.

TUMORS.

A valuable contribution for those who deal practically with tumors is to be found in Mallory's text-book, "The Principles of Pathologic Histology." This book contains an admirably simple and adequate classification upon a histologic basis, and the different tumors are well illustrated and described with great clearness.

Rous and Lange (*Journal of Experimental Medicine*, Vol. 18, No. 6, p. 651) report the find-

ing of a third transplantable chicken tumor due to a filterable cause. This third tumor is a sarcoma having characteristic intracanalicular arrangement in relation to blood sinuses which accompany the growth. Like the other two chicken tumors described by Rous, a spindle cell sarcoma and an osteochondro-sarcoma, this one is due to an agent which will pass through Berkefeld filters.

Henke and Schwarz (*Deut. Med. Woch*, Vol. 40, No. 6, p. 67) claim to have transmitted a mouse carcinoma by injection of cell-free filtrates. The tumor was one propagated by them from a spontaneous mammary carcinoma of unusual virulence. The technic was to grind up the tumor in sterilized salt solution by means of sand. The emulsion was centrifugalized and filtered through ordinary filter paper. The filtrate is said by the authors to be cell-free.

Tyzzer (*Journal of Medical Research*, Vol. 28, No. 2, p. 309) has contributed some valuable experimental evidence concerning factors in the distribution and growth of tumor metastases. Tyzzer made use of the carcinoma of the Japanese Waltzing mouse, which was originally propagated by him from the spontaneous tumor discovered several years ago. In all, 157 inoculated animals were utilized and manipulated in various ways. He found that metastases may be artificially produced by the manipulation and massage of the implanted tumor, and that this is accomplished as readily during the early development of the tumor as in the later period in which metastasis naturally occurs. Incomplete operations involving the incision of implanted tumors do not increase the incidence of the metastases, but the metastases that result grow more rapidly if a large amount of the original tumor mass is removed. Radical operations involving removal of all the tumor, when performed just prior to the period in which metastasis commences, results in a temporary freedom from this complication, even though recurrence commonly occurs. The clinical inferences to be drawn from this work are obvious.

HODGKIN'S DISEASE.

Renewed interest in the etiology of this poorly defined disease is awakened by reports of the cultivation of a diphtheroid bacillus. The first account is by Negri and Mieremet (*Cent. f. Bak. Orig.*, Abt. 1, bd. 68, heft 3-4, p. 292) who cultivated from two cases, a bacillus having distinctive cultural and morphological characteristics. Their animal experiments on guinea pigs, rabbits, mice and monkeys did not give conclusive results, and for the greater part were negative. In the introduction to their paper, the authors call attention to the fact that Fraenkel and Much found bacilli, morphologically similar, in cases of Hodgkin's disease, by the antiformin sedimentation method. Eleven cases which were proved not to be tuberculosis yielded the diphtheroid bacillus. A number of other observers confirmed this work before the time of publication by Negri and Mieremet. The authors believe their cultures to be identical with the bacilli found by Fraenkel and Much.

In this country, apparently stimulated by the work of Fraenkel and Much, and independently of Negri and Mierement, Bunting and Yates (*Arch. of Internal Medicine*, Vol. 12, No. 2, p. 236) report the cultivation of the diphtheroid organism from three cases of Hodgkin's disease. In later publications (*Journal American Medical Association*, Vol. lxi, No. 20, p. 1803, and Vol. lxii, No. 7, p. 516) they report inoculation experiments in five monkeys which reacted in a manner suggestive of Hodgkin's disease. The authors lay stress on the fact that the blood picture in these monkeys was similar to that which is found in man in the early stages of the disease.

Billings and Rosenow (*Journal of the American Medical Association*, Vol. lxi, No. 24, p. 2122) report the cultivation of the same bacillus in twelve cases. No animal experiments are recorded. The cultures were utilized for vaccine treatment of the disease with results suggestive of improvement.

Steele (BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxx, No. 4, p. 123) reports the finding of the same bacillus from a case of Hodgkin's disease, and from a case of lymphatic leukemia.

It is difficult to appraise the importance of these papers. They are certainly highly suggestive that the commonest form of chronic glandular enlargement known as Hodgkin's disease is infectious and due to a bacillus closely related to the diphtheria bacillus on the one hand and the tubercle bacillus on the other. The animal experiments so far recorded cannot be taken as conclusive; they are merely suggestive and the lesions obtained are such as would result from an extremely attenuated tubercle bacillus or even by attenuated pyogenic bacteria. It is true that the lymph nodes draining the regions inoculated show chronic inflammatory changes and necrosis, but it must be remembered that the inoculations were repeated several times in the same animal. The metastases of the lungs, liver, heart and pancreas were in the nature of abscesses and did not simulate the metastatic lesions in man.

In this connection one must also take into account that diphtheroid bacilli are frequently encountered in human tissues. The most notable instance is in leprosy, where they have frequently been encountered in all parts of the world (Wolbach and Honeij, *Journal of Medical Research*, Vol. xxix, No. 3. p. 367). These observations will undoubtedly stimulate research regarding the occurrence of bacilli in normal and diseased tissues, other than Hodgkin's disease. In the absence of a perfectly characteristic reaction in animals, proof depends on indirect methods, such as the obtaining of

characteristic immune reactions and statistical studies.

COMMUNICABLE DISEASES.

Non-Infectious Tick Bite Disease. Todd in 1912 (*Canadian Medical Association Journal*, Vol. ii, No. 8 and No. 12) calls attention to a peculiar disease of children associated with the bites of ticks. The tick is the same one that transmits spotted fever in Montana. The symptoms are those of an acute ascending paralysis. Recovery takes place after removal of the ticks.

Bishop and King (*Journal of Economic Entomology*, Vol. vi, No. 2) in a study of the spotted fever tick record nine cases of paralysis in which the symptoms subsided rapidly after the removal of the ticks. They know similar cases reported from Wyoming.

Eaton (*Australasian Medical Gazette*, Vol. xxxiii, No. 17) reports the case of a child with temperature and paralysis of the legs and thighs, who recovered rapidly after the removal of a tick which was attached over the right scapula. He quotes other similar cases noted by Cleland in Australia.

It is hardly possible that a disease of this nature could be caused by an infectious agent, but coming from such widely different sources, it is not possible to doubt the accuracy of the observations, and we must accept the fact of a new disease, caused by bites of ticks, and probably dependent upon the injection of toxic substances.

Verruga Peruviana, Oroya Fever, Uta, Strong, Tyzzer, Brues, Sellards and Gastiaburu (*Journal of the American Medical Association*, Vol. 61, No. 19) give a preliminary report of the first expedition to South America from the Department of Tropical Medicine of Harvard University. They have shown that verruga peruviana and oroya fever are separate diseases, contrary to the generally accepted idea that the latter is an acute stage of the former. They accept as a cause of the diseases bodies found in the red blood corpuscles, originally described by Barton, Gastiaburu and Nicolle. The nature of these bodies has been disputed but Strong, Tyzzer and their associates have definitely decided that they are parasitic in nature and have created a new genus, Bartonia, for these parasites. The authors have succeeded in transmitting verruga peruviana to animals,—monkeys, dogs and rabbits. An inoculation experiment done on a volunteer produced only local papules. There was no fever, no eruption and no blood changes, such as occur in oroya fever.

Uta is a disease known from prehistoric times in Peru and is a destructive granulomatous process involving the face. The members of the expedition have found the parasite of this disease, which is a leishmania.

(To be continued.)

RECENT PROGRESS IN GENITO-URINARY SURGERY.

By Francis S. Watson, M.D., Boston,

and

Paul Thorndike, M.D., Boston.

KIDNEY.

Infantile Kidney. Geraghty and Plaggemeyer.[1] Three thousand, nine hundred and forty autopsies at the Johns Hopkins Hospital show three cases of the above type where a large hypertrophied kidney existed on one side and a small so-called infantile kidney on the other side.

CONCLUSIONS.

The diagnostic points in determining the presence of a kidney of the type presented above, may be summed up briefly as follows:

1. When disease is present in the larger, hypertrophied kidney, the total function, as estimated by phenolsulphonephthalein, is decreased, and the function of the diseased kidney is usually greater than the function of the supposed healthy kidney.

2. The function of the infantile kidney shows marked decrease, although the urea percentage and general character of the urine is normal, while the amount of urine secreted is relatively small.

3. Pyelography is of doubtful value, since the size of the kidney pelvis is usually not a reliable index of the size of the kidney.

4. In persons not too stout it may be possible to secure Roentgen-ray shadows, showing the presence of a diminutive kidney.

In Case 7 considerable diagnostic help was obtained from the Roentgen ray, which showed a very small kidney shadow, less than half that of the opposite side. This, taken in conjunction with the functional findings and the character of the urine, was of considerable diagnostic aid.

In conclusion, it may be emphasized that kidneys of the infantile type are a menace to the surgeon if the opposite kidney is the seat of the disease. The character of the urine may be normal in appearance and the urea concentration or percentage may be high. The recognition of this anomaly may be extremely difficult, and its presence can be suspected only when function estimations are carried out.

Tests of Renal Function. The Blood-kidney Index in Kidney Disease. Bromberg[2] says that the chlorides in the blood and in the urine afford a most valuable means of estimating renal function. He says that normal concentration in the blood is just half that in the urine, and he calls this ratio of 1 to 2 the hemo-renal index. He claims that a change in this index points to trouble sooner than any other sign, and that as

soon as this ratio becomes less than 1 to 2, some serious disturbance should be looked for. If the ratio becomes less than 1 to 1.5, operation of any sort is contraindicated. The author has made a small electric apparatus by which he computes easily the amount of chlorides in the blood and urine by comparing their electric conductivity. This apparatus is illustrated and described. It requires only a few drops of blood and of urine for the performance of the test.

Fluorescein Test. Strauss,[3] in thirty cases, found that if one gram of fluorescein-sodium be given by mouth, a fluorescent urine was passed in from ten to twenty minutes, and that this fluorescence disappeared after thirty-five to forty hours. He thinks these facts may be made the basis of a valuable renal test which will be extensively used because the drug is taken by mouth instead of under the skin, and the technic is so much simpler than that of the tests now commonly in use.

Chromo-ureteroscopy. Thomas[4] believes that chrono-ureteroscopy, based on the employment of indigocarmin, is the most valuable single test for renal sufficiency or insufficiency that we possess, because it is the most practical, affording the same diagnostic advantages as the functional tests dependent on bilateral synchronous ureteral catheterization, the technic and determination of which are tedious, complicated and consume much more time. Comparative observations of the onset and intensity of the color elimination have never failed to determine the functional sufficiency of the supposedly normal twin organ in view of operative intervention. It is of no value in movable kidney, in the presence of ureteral kink or hydronephrosis, pyelitis, essential hematuria, or early tuberculosis. It is of value in the differential diagnosis of hemorrhage and chronic interstitial nephritis from other types of the disease.

URETERO-VESICAL VALVE.

Braasch[5] discusses the advisability of cutting the uretero-vesical orifice either through a suprapubic incision or through an operative cystoscope for the purpose of removing the stones from the lower end of the ureter. He reiterates the fact that this uretero-vesical valve exerts, under certain conditions, a check-valve action which, however, is of questionable value in preventing a reflux of urine from the bladder. He reports his own experiments and concludes as follows:

"Tentatively we conclude that in experienced hands there is little or no danger in human beings from the operation of meatotomy through the operative cystoscope, either as regards immediate hemorrhage or sepsis, or as regards late results from injury to the kidney.

"The protection from reflux is affected at least as much by physiological function of the ureter as by the check-valve action at the meatus. These together, rather than the uretero-vesical valve alone, constitute the 'factor of safety' which prevents reflux.

"The ureter alone, almost without exception, sufficed experimentally to prevent reflux, even if the uretero-vesical valve had been destroyed. Section of the valve appeared to leave the protective ureteric function intact.

"The above data would confirm the opinion expressed by others that renal infections are seldom if ever ascending, but rather hematogenous in origin."

Intra-dural Route, Anastomosis, for the Relief of Paralysis of the Bladder. Frazier and Mills.[6] The authors describe in detail a remarkable operation of nerve-root crossing by which an anastomosis between the first lumbar and the third and fourth sacral nerves was accomplished. They claim that such a procedure has a place in surgery, especially in the paralyses of the bladder and rectum following trauma, and they conclude their admirable paper in part as follows:

"If this new plan of procedure had no other application than for the relief of the vesical palsy it would still have a wide and important field. That it is based on a reasonable hypothesis has been proved by experimental observations on the lower animals; that it is a justifiable risk no one will gainsay; that it gives promise of attaining its object has been demonstrated by the fact that our patient has already gained some control of the bladder."

PROSTATE.

Radium in the Treatment of Prostatic Cancer. Pasteau and Degrais.[7] At the present time, when surgery offers so little relief for prostatic cancer and when radium is being hailed as cancer's most powerful enemy, this article is of interest. The authors have used radium on fifteen patients, among whom were two physicians. The radium was introduced into the full bladder by means of a narrow tube, which is described. It is left in place three or four hours, and six exposures are made at intervals of three to six days. Similar exposures may be made through the rectum or through an incision in the perineum or into the bladder from above, as well as through the ureter. Improvement is claimed in every one of the fifteen cases.

A New "Punch Operation" for Small Prostatic Bars and for Contractures of the Prostatic Orifice. Young[8] describes an instrument for punching out pieces of tissue for the relief of obstruction due to small prostatic bars or to contractures or lobules not associated with lateral hypertrophy of the prostate. He says that in such cases the operation is radical, does not have to be repeated, does not require subsequent urethral dilation and does give lasting cures.

The Human Prostate Gland at Birth. Lowsley[9] spent many months studying serial cross sections of the prostate of a baby. The results of his work are embodied in a wax model which maintains exactly the normal relations of the

structures studied, and which demonstrated admirably certain facts of real surgical value. For example, two large lobules in the outermost portion of the lateral prostatic globes send branches in a direction away from the bladder. All other lobules extend towards the bladder. In most successful enucleations the two forward branches are found extremely adherent and must be cut across. Again, he shows how cancer and hypertrophy may exist together and how the hypertrophied lobe may be so distinctly capsulated as to resist the invasion of cancer and so oblige it to travel in other directions. This is a most interesting and instructive paper of great value.

TESTICLE.

Paths of Infection in Genito-urinary Tuberculosis. Walker [10] offers evidence (clinical, pathological and experimental) which he thinks goes to show that tuberculosis infection of the testis takes place by extension down the cord and not through the blood stream. He does not deny that the latter form of infection may exist, but says it is rare. The evidence he quotes as follows:

"Clinical evidence: 1. It is extremely rare to find tubercle of the epididymis without discovering some indication of disease of the prostate or the vesicles. 2. Prostatic tubercle is not infrequently found without any lesion of the testicle. 3. The appearance of a tuberculous epididymitis is often preceded by symptoms of prostatitis or vesiculitis—the so-called prodomata of tuberculous epididymitis. 4. The earliest signs of tuberculous disease are found at the lower pole of the epididymis. This is the first position which opposes the line of march of the invading organisms. 5. Tuberculous disease of the testicle is analogous to acute infections which are known to have been produced by extension from the urethra. The ordinary type of tuberculous epididymitis has no analogy to the hematogenous orchitis of mumps. Pathological evidence: 1. Lesions of the testicle without disease of the prostate are rare whereas tuberculous lesions of the prostate are not infrequently found unaccompanied by disease of the testicle. 2. When tubercle of the testicle is found in association with tubercle of the prostate, the lesions in the prostate generally have the appearance of being older than the lesions in the epididymis. 3. Tuberculous nodules in the lower pole of the epididymis usually appear older than those in the upper pole. They are the first to soften and break down. Experimental evidence: 1. Microorganisms and inanimate granules are rapidly absorbed from the urethra and carried to the testicle. 2. A tuberculous epididymitis may be experimentally obtained by inoculating the urethra, after having damaged one of the testicles." This work is recorded because it is so at variance with commonly accepted beliefs.

Transplantation of the Testicle. Lespinasse.[11] The author reports a most remarkable case in which slices of a recently removed healthy testis were transplanted between fibres of the rectus muscle and also into the scrotum of a man who had lost both testicles and was impotent. "On the fourth day after the operation, patient had a strong erection accompanied by marked sexual desire. The man has, since the operation, regained his sexual powers completely, both as to desire and as to ability. Furthermore, these powers have remained present for two years." A description of the technic of the operation follows

"A man, aged 38, consulted me in January, 1911, to find out if anything could be done for the loss of both testicles. One testicle which had been retained was removed during a hernia operation; the other had been lost by an accident about two years previous to his consultation with me. He was unable to have intercourse, which was his chief reason for coming to me.

"A testicle from a normal man was easily obtained. In fact, I was surprised at the number of testicles that are available for transplantation purposes.

"The two patients were anesthetized at the same time, and the recipient prepared as follows: The scrotum was opened high up and a bed prepared in the same way as we prepare the bed for the reception of an undescended testicle. Hemostasis was carried out with great care. Another incision was made over the rectus abdominalis muscle; this incision was carried down through the skin and fascia. The fibres of the rectus muscle were exposed and these fibres separated by opening an artery and forceps plunged into the muscle. Hemostasis was carried out and then the testicle to be transplanted was removed. It was immediately stripped of the epididymis, cord and tunica vaginalis, and then sliced transversely to its long axis, these slices being approximately 1 mm. in thickness. The central slice and the one next to it were taken out and placed among the fibres of the rectus muscle. Another slice was placed in the scrotum. The wounds were closed without drainage and healed by first intention throughout."

SEMINAL VESICLE.

Belfield.[12] In these two short articles, illustrated by radiographs, the author describes the technic by which collargol or some equivalent metallic compound may be injected into the vas deferens and so up into the seminal vesicle through a small scrotal incision opening into the vas just above the testis. The incomplete work Belfield had done has already demonstrated several important facts, namely, the existence of a peristalsis of the ampulla and vesicle into the prostatic urethra and sphincteric closure of the ampulla and vesicle; the occasional blockade of the ejaculatory duct," converting the vas and vesicle into a retention cyst."

GONOCOCCUS.

Gonococcus Vaccines and Glycerine Extracts of the Gonococcus in the Diagnosis of Gonorrheal Infections. G. C. Shattuck and W. S. Whittemore.[13] Persons suffering from infectious diseases often demonstrate certain changes in the blood serum. These changes are believed to be responsible for certain reactions, like that of tuberculin, and a few investigators believe they have found in the serum of gonorrheal persons changes which they believe to indicate a specific reaction for gonorrhea. The authors of this valuable article hoped to find "a reliable method of diagnosis for gonorrhea by means of a specific reaction." Their conclusions follow:—

"*a.* From published work of others referred to above:—

"1. Reactions thus far observed after injections of gonococcus vaccine have not been clearly specific for gonorrheal infection.

"2. The reactions seem to show a selective action in some types of gonorrheal disease.

"3. Local reactions after injections are common in non-gonorrheal cases. They are not valuable for the diagnosis of gonorrhea or for demonstration of its cure.

"4. Focal reactions are seen frequently in active gonorrheal arthritis and salpingitis; but, whereas they have been observed in cases showing no other evidence of gonorrhea, their diagnostic value is small.

"5. A general reaction is seldom noticeable, and it may be easily simulated by slight symptoms due to other causes. It has *per se*, no diagnostic value.

"6. Gonococcus vaccine autolyses rapidly, and thus undergoes changes little known.

"*b.* From writers' work:—

"1. The concentrated vaccine used by the writers showed no superiority for diagnostic tests.

"2. It produced in gonorrheal and in control cases a local lesion like that of a chemical irritant. We think that autolysis may have been a factor in producing the supposedly irritating properties of our vaccine; that the changes in the vaccine may have prevented it from producing a specific reaction; and that the unsatisfactory therapeutic effects of gonococcus vaccine may, perhaps, be traceable to autolysis.

"4. Glycerine extracts of the gonococcus inoculated by the method of von Pirquet caused, in a few cases, the formation of peculiar papules which may have represented a specific reaction. Most of the cases showed no definite reaction.

"5. Although our tests were negative in the main, and although the work of others using similar methods has yielded unsatisfactory results for diagnosis, we desire to emphasize our belief that failures serve as guideposts to progress, and that present knowledge justifies the hope that a valuable diagnostic test for gonorrheal infection may yet be devised through improved methods of preparing vaccines or extracts of the gonococcus.

"It is with great pleasure that we express our thanks and obligation to Dr. Albert E. Steele for preparing the vaccines and the extracts which we used, and to Dr. Hugh Cabot, as well as to many other members of the staff of the Massachusetts General Hospital, for the opportunity to study their patients."

An Easy Method for the Cultivation of the Gonococcus. G. F. Clark, U. S. N.[14] Clark uses Thalmann's medium and human blood serum. His technic follows: "Five hundred grams of lean, finely minced beef are placed in 1000 c.c. of distilled water and allowed to stand over night in an ice box. It is then filtered and the filtrate made up to 1000 c.c. with distilled water. To 100 c.c. of the beef juice add 1½ grams of agar and boil for fifteen minutes. Then add 2 grams of glucose and bring the reaction to plus 0.6 by addition of NaOH. Tube, sterilize, slant and incubate over night. No peptone or salt is required. To each tube of the medium add 4 to 5 drops of fresh, sterile human blood-serum. After washing the glans penis with alcohol and wiping off any secretion at the meatus, a drop or two of the pus is expressed from the meatus and inoculated on the medium. It is best to incline the test-tube prior to inoculation, so that the serum will flow over the entire surface. The pus should be evenly spread. In sixteen hours the colonies of gonococci can be readily seen as small white points. Toward the bottom of the tube the colonies are larger, sometimes almost as large as staphylococci when grown in ordinary mediums."

Complement Fixation Test. Schwartz and McNeil.[15] The authors state their belief that the complement fixation test is simpler than that of isolation of the germ in culture and they think the possibilities of error are less. They detail the following figures:—

A positive reaction in 31.4% of cases, clinically post-gonorrheal; a positive reaction in 54.8% of 62 patients, infected within 3 years; a positive reaction in 13.2% of 165 patients, clinically cured after three months.

EXCRETION OF FORMALDEHYDE.

An Experimental Study of the Antiseptic Value in the Urine of the Internal Use of Hexamethylenamin. Hinman.[16] "Hinman finds that hexamethylenamin is easily converted into formaldehyde in an acid medium but not in an alkaline one. The amount of excretion in the urine is influenced by the size and frequency of the dose and the changes that occur in the acid contents of the stomach. Disease of the kidney has no influence on the formaldehyde content of the urine. Doses smaller than fifteen grains three times a day cannot be expected to produce much antiseptic action.

Excretion of Formalin in the Urine and Inquiry into the Accuracy of Burnam's Test.

Smith.[17] In our last report, published in this JOURNAL (January 2, 1913) mention is made of the work of Burnam and L'Esperance. In the paper under consideration Smith discusses Burnam's work, and from a study of 213 specimens of urine obtained from fifty persons, draws the following conclusions:—

"1. Burnam's test for formaldehyde in urine is definitely positive when this substance is present in the strength of 1 part in 40,000 or more.

"2. The urine should be examined as soon as possible after it has been voided. A negative test at one time does not prove that formaldehyde is never liberated.

"3. From the evidence at hand, we believe that formaldehyde is liberated from the hexamethylenamin by the acids of the urine, not by a specific function of the renal epithelium.

"4. This process may take place in the kidney, but is continued in the bladder.

"5. Litmus paper, as an indicator of the true acidity of the urine, was unreliable in about 25% of the cases examined.

"6. The degree of acidity of urine, as measured in terms of its hydrogen ion concentration, showed in our cases a constant relation to its power to set free formaldehyde. The higher the acidity, the greater was this power.

"7. The requisite amount of acidity, which is not great, is present in the majority of normal urines, and can be secured in almost all cases by the use of boric acid or sodium acid phosphate.

"8. The writer disagrees with the statements of Burnam and L'Esperance that only 50 to 60% of individuals break up urotropin. Examination of 213 specimens from 50 individuals showed that only in the urine of one case was formaldehyde never found."

VALUE OF NEPHRECTOMY IN CASES OF UNILATERAL RENAL TUBERCULOSIS.

By Dr. J. Z. Barrie, of Lyons, France, 1912. (A Rey, 4 Rue Gentil, Lyons.)

This very thorough and interesting monograph rests for its material upon a number of patients selected from the clinical records of one of the most careful analyzers of clinical material in France, Dr. Rafin, which embraces a considerable number of patients whose records are complete both as to the conditions preceding operation and to the late results of the nephrectomies.

The reporter of these observations precedes them by saying that the diagnosis of unilateral renal tuberculosis was most carefully tested before operation and also afterward, and divides the work that he details for the further aspects of the cases as follows:—

What is the duration of renal tuberculosis when no operation is done?

Then the question of spontaneous cure of renal tuberculosis is considered in the light of hitherto published evidence. In a third chapter the question is considered, "Does the disease in one kidney threaten involvement of its fellow organ?" And in connection with this question the results of the study of the immediate and late results of nephrectomy in cases of unilateral renal tuberculosis are considered.

Finally, the comparison of the advantages gained by the removal of the focus of tuberculous disease is made with the disadvantages of leaving such a focus undisturbed by surgical intervention. In 91 cases observed and whose histories until death were known, death took place at the following times after the beginning of the malady in the cases in which no operations were done.

In the first year death occurred in 19.
In the second year death occurred in 10.
In the third year death occurred in 15.
In the fourth year death occurred in 8.
In the fifth year death occurred in 7.
In the sixth year death occurred in 13.
In the seventh year death occurred in 6.
In the eighth year death occurred in 5.
In the ninth year death occurred in 2.
In the tenth year death occurred in 1.

From the tenth year to the sixteenth year there were 5 deaths.

Of the surviving patients there were 77.

Of these, 18 had had the disease for 1 year to 2 years; 19 had had the disease from 3 years to 5 years; 28 had had the disease from 6 to 10 years; and 12 for more than 10 years.

The average time of death in the cases in which the patients had died was four years and six months, and the average time of life reported in the cases in which the patients were still alive was 4 years and 9 months.

The cases are further analyzed with regard to duration of life or occurrence of death in women as compared with men and also according to the ages of the patients attacked.

The first of these analyses indicates that death comes later in the cases of women than of men.

In considering the question of spontaneous cure of renal tuberculosis, he examines the cases from two points, these are the conditions found at autopsies and carefully established clinical observations.

Data are given of cretaceous areas surrounded by fibrous capsules in the kidneys, which have been interpreted as being tuberculous processes, either healed or en route to become so in some instances, while in other cases kidneys have been found with areas of cicatricial tissue which have been variously interpreted, but concerning which there is lacking definite proof of their being end results of a tuberculous process. The general consensus of opinion is that a completely healed tuberculous process, if it occurs at all in the kidney, is of very rare occurrence, and many authorities deny the existence of such a condition.

The clinical facts are almost as rare as are those which point to the possibility of a spontaneous cure in cases of renal tuberculosis. One

instance reported by Wildbolz seems to be pretty well established and by all the known tests by which the presence or absence of the malady can be discovered.

He calls attention to the deceptive condition that may be presented in the cases in which the kidney has the ureter closed and undergoes caseous atrophy under a tuberculous process, and in which cases cured may be absolutely simulated and yet the process still be present in the shut-off kidney.

Barrie then takes up the question of the effect or the transmission of the malady from one kidney to the other. He gives statistics which seem to show that in cases in which one kidney is infected the disease is transmitted to the opposite organ in a considerable number, rather than from some extra-renal focus, and calls attention to three series of facts which indicate the involvement of the second from the first kidney infected.

Israel reports, for instance, that in the series of cases published by him there were more cases of bilateral renal tuberculosis in which the infection was confined to the kidneys than there were, or those in which there was an extra renal focus of the disease,—this in bilateral cases.

If this fact be true it would point to the greater frequency of the transmission of the infection from one kidney to its fellow than to the second kidney from any extra renal focus.

The second fact cited is that when one kidney is removed there is a decidedly lesser chance that the second one will be infected than when the two organs are allowed to remain.

In considering the question of cure in unilateral cases by means of nephrectomy the number of cases in which cure can be definitely established is as 32.0% of the whole number operated.

In five of these cases the cure has been demonstrated by testing the patients more than eight years after operation. In 32 cases the cure is established and endures from five to eight years.

Later in the report the influence of nephrectomy upon the bladder in unilateral cases is given.

Of 52 cases in which careful observations were made there were 5 in which no benefit was derived on the part of the bladder from the nephrectomy; in 43 there was a return to the normal subjective condition of the bladder promptly; in 9 it occurred slowly. With regard to the condition of the urine following nephrectomy the following statements are made:

In 35 of the cases the urine became and remained perfectly clear after the operation; in 8 others it did not.

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Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY.

MEETING OF THE MEDICAL SECTION JANUARY 21, 1914, AT THE BOSTON MEDICAL LIBRARY.

L. H. SPOONER, M.D., SECRETARY.

Dr. Horace D. Arnold read a paper entitled,

SOME PROBLEMS IN NEPHRITIS.*

DISCUSSION.

DR. H. A. CHRISTIAN: We are indebted to Dr. Arnold for his presentation of this important subject, presented largely by means of the review of a few very carefully studied cases, some observed for a long time. I would like to emphasize at this time the importance of such observations on the part of practitioners. Chronic nephritis is a common disease, so all have the opportunity of observing it. It is a disease of long duration, consequently the practitioner has a distinct advantage over the hospital physician in its study. Being a disease of long duration, it is the private patient, who is followed year in and year out by the general practitioner, and not the hospital patient, who comes for a brief time and is frequently then lost sight of, who furnishes the best opportunity for study. Furthermore, it is important that the patient under investigation should be intelligent and well to do, because intelligent coöperation on the part of the patient is necessary and because it is only among the well to do that the opportunity is afforded for continued use of special diets. So the well-to-do individual of intelligence observed for a long time is almost a requisite for such a study. At this time I wish to emphasize the very great importance to all of us of following these patients through the course of their disease, and when they die, of securing autopsies in order to know the exact condition in the kidney about which the physician has been speculating over a period often of years. Only a very few carefully observed cases of this nature have been recorded with autopsy findings.

Dr. Arnold has presented to you an hypothesis as to the etiology of nephritis and as to the cause of hypertension in chronic nephritis. I am quite sure that he has presented this as an hypothesis to serve as a guide to investigation rather than as a demonstrated fact. Such an hypothesis is of value, because if observation proves it to be correct we thereby have secured information as to definite facts. If observation proves it incorrect, it has helped because it has led to a study which has in the end provided us with facts, notwithstanding these facts

* See page 601.

may be contrary to the hypothesis with which we started.

Personally I do not feel that there is any necessarily close relation between high protein intake and hypertension. In the hospital, looking over the records of bood-pressure, I repeatedly see in some cases the blood-pressure fall, in others rise, when all of the patients are essentially under the same conditions of rest in bed, and diet, have, so far as we can make out, essentially the same pathological condition. These changes in blood-pressure take place without our being able to assign any definite cause. Furthermore, I have not infrequently observed the blood-pressure to fall while the non-proteid nitrogen of the blood rose. Recently we had under observation a case in which the blood-pressure was 240 millimeters of mercury with 96 milligrams of non-proteid nitrogen per 100 c.c. of blood. As the non-proteid nitrogen in the blood rose to 129 milligrams, the blood-pressure fell to 220, and when it further rose to 330 and 347 milligrams, the blood-pressure had fallen to 180. Furthermore, we not infrequently see very high blood-pressures without any evidence of the accumulation of non-proteid nitrogen in the blood.

Studying the ability of the kidney to excrete various substances, we find in some cases with high blood-pressure and with evidences of chronic nephritis that the individual is able to excrete nitrogen well and salt poorly. Other cases are able to excrete salt well and nitrogen poorly. Still other cases excrete both salt and nitrogen well, while a fourth group excrete neither salt nor nitrogen well. All of these cases have hypertension. Whatever the cause of the hypertension, it would seem that there are different types of cases on this group. It might be very helpful in getting at a proper dietary treatment for such cases to know these facts in advance and to model a diet in accordance with such observations. In the hospital quite easily such determinations can be made in relatively short time. Then a diet can be planned, but that diet must be continued for a long time before any definite conclusions can be drawn from its use. In this sense it would seem necessary that both the hospital physician and the general practitioner should share in the investigation and each would have a very definite part in the study.

DR. R. FITZ: Dr. Arnold has described striking results in the dietetic treatment of chronic nephritis. But to make any form of treatment most efficacious, a positive and accurate diagnosis of the existing lesion must be made as early as possible. Dr. Folin has pointed out that the different parts of the kidney have selective excretory functions, and Dr. Arnold has outlined tests which may be made to study various renal excretions. The basis for these tests is experimental and theoretical, and the interpretation of the results obtained has not been controlled in a sufficiently large number of cases to establish their significance from an anatomical-pathological point of view. But enough clinical evidence has accumulated to prove that their use is of real worth in the early diagnosis of kidney disease.

Every clinician is familiar with patients who consult him for indefinite cardio-vascular symptoms. Physical examination shows a slight cardiac hypertrophy. The blood-pressure may be increased. The urine is normal by ordinary tests. In this class of cases it is essential to discover the existence of a nephritis. It is in this group of cases that the more delicate tests for renal function are of greatest importance.

In such patients the phthalein test is usually normal, while the rest-nitrogen of the blood does not afford positive information of a renal lesion, since it has not accumulated. But the excretion of lactose, nitrogen, salt, water and iodide may definitely prove or exclude abnormal function on the part of the kidney, and if observed repeatedly, makes it possible to follow the progression of the disease before there are any outspoken clinical signs of its existence. Thus it must be emphasized that the finer tests for renal function are valuable in the diagnosis and prognosis of kidney disease as well as in serving as a guide to rational dietetic treatment.

DR. OTTO FOLIN: From an extended series of observations made on patients at the Long Island Hospital we believe that there is no tangible relationship between the blood-pressure and the accumulation of nitrogenous waste products in the blood in nephritis. The accumulation of such waste products can be modified, increased or diminished within very wide limits by the use of high and low nitrogen diets, but we have failed to find corresponding variations in the blood-pressure.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF WEDNESDAY, FEBRUARY 4, 1914, 8 P. M.

The President, DR. JAMES C. WILSON, in the chair.

DR. WILLIAM S. NEWCOMET read a paper on,

ONE HUNDRED CASES OF MALIGNANT DISEASE TREATED WITH RADIUM.

DISCUSSION.

DR. EDWARD A. SHUMWAY: The last patient shown by Dr. Newcomet has been under my observation since 1900, when I operated upon him for convergent squint. The results of the operation were excellent and he was comfortable until 1911 when he developed severe headache associated with vomiting and staggering toward the left side. In March, 1912, Dr. Frazier operated, evacuating and removing the wall of a cyst the size of a walnut found on the upper surface of the left cerebellum. The symptoms were entirely relieved but there was a recurrence of symptoms in the spring of 1913. In September Dr. Frazier did a second operation and found a solid growth in the cerebellum on the left side which proved to be a glioma. The case was considered inoperable, but upon the father demanding that something be done, the boy was referred to Dr. Newcomet. The result as seen now is gratifying. It is possible that the improved condition of the optic nerve head may be the result of the second operation, which, however, did not improve the general symptoms. Whether the improvement be temporary remains to be seen. The case, however, is well worthy of report.

DR. CHARLES H. FRAZIER: It is evident from the reports of Dr. Shumway and Dr. Newcomet that the application of radium has had a very positive influ-

ence upon the growth. We have had several cases, however, in which improvement following a simple decompressive operation in conditions precisely similar to this case, has continued over a period of at least three years. Regarding the use of radium in tumors of the brain Dr. Robert Abbe of New York and I have discussed the feasibility of using radium directly at the time of operation, not only in brain tumors generally, but possibly in lesions of the pituitary body, and we have under observation two cases in which such procedure may be employed.

DR. GEORGE E. DE SCHWEINITZ: It seems to me that there is a certain use which radium has, even if it is unable to check the progress of a growth, namely, the alleviation of pain. We may not always hope to remove the growth, but even if there is a relief of pain, the application of radium is abundantly justified. Of its value in deep-seated growths I can express no opinion, because I have not had any personal experience. Dr. Newcomet is to be congratulated on the conservative attitude which he has assumed.

DR. JAY F. SCHAMBERG: Dr. Newcomet should be congratulated upon the encouraging results shown in the patients exhibited. Likewise he should be commended for his conservatism. I feel that we ought to maintain a feeling of hopeful expectancy regarding the results of radium treatment. We are in an experimental period. The most hopeful cases Dr. Newcomet shows are those of pronounced influence upon metastatic lesions in the lymphatic channels. It is fortunate that we have had presented this evening a paper which differs in tone from the extravagant utterances which have appeared in the public press within recent months.

DR. M. B. HARTZELL: Dr. Newcomet is to be congratulated upon his rational conservatism. The most we can say about radium is that it is a hopeful remedy, and that, when we have learned more about it, perhaps we shall discover that we have a remedy for a certain class of malignant growths.

DR. ALFRED GORDON: It would be one of the greatest acquisitions in medicine if radium could be applied to tumors of the brain. When Dr. Abbe came a short time ago before the College it occurred to me to ask him why this agent should not be tried in tumors of the brain, which are practically all hopeless cases. He seemed somewhat surprised by this question and said he would make an effort to make such application of this agent. Literature gives instances of the successful use of radium in some neurological conditions, such as obstinate cases of sciatica. It has also been employed in syringomyelia and in progressive muscular atrophy.

DR. A. B. HIRSH: In view of the expensive charges being made for the radium emanation bearing waters for internal administration, it should be remembered that the Department of Agriculture at Washington has issued a caution that these waters lose their medicinal effect within a few hours after leaving the source of supply.

DR. JOHN A. MCGLINN: I have had no experience with radium, except one case which I sent to Dr. Newcomet. It seems to me that in these cases of inoperable cancer of the cervix radium has its greatest field, if results equal those in the case shown tonight.

DR. NEWCOMET, closing: With reference to the direct application to the brain case referred to by Dr. Frazier, it seems hardly necessary to open the head to make these applications with the radium, as the "crossfire" should answer and give us as perfect result. The case presented tonight gives an example of this method and while decidedly improved, hasty conclusions must be withheld. It must be admitted that sarcomas are always most irregular in their course, and glioma is of sarcoma type. The cases of spontaneous cure have usually been sarcoma. The ideal method of using radioactivity is to employ the emanations of radium. Emanation waters must be used soon after derivation from their source. Where you have a large supply of radium the emanation should be taken off for use and the radium kept in stock.

THE CURE AT VITTEL.

DR. WILLIAM J. TAYLOR: Vittel is in northeastern France, in the Vosges, in a wide valley with an elevation of 1100 feet. The waters may be classed as mild alkaline bicarbonated, sulphated waters, non-chloride bearing, the most pronounced characteristic being the almost total absence of chloride of sodium. Their mineralization is sufficient but not excessive, and they have not the inconvenience of waters highly charged with sulphate of lime, nor the dangers of waters too strongly alkaline. The really active principles are the sulphates, carbonates and chlorides of magnesia, soda and potash, and to some extent the bicarbonates. The waters of Vittel are readily absorbed and have not the tendency to liberate free carbonic acid, and can be used with great freedom as a table water. The absence of sodium chloride renders them of the greatest value in all kidney troubles, in arterial degeneration, as well as in many diseases of the heart, and in all neurasthenias consequent upon toxemias of every sort. The Vittel treatment is primarily that by diuresis. The dosage must be carefully adapted to different individuals and diseases. Massage of some sort is essential. One form given,—massage under water,—is simply massage and movements of all the joints while a spray of hot water is playing over the whole body. I believe that the greatest efficacy of these waters is in cases of excessive uric acid and other waste products or toxemias and renal calculosis. The action in lowering blood-pressure is most marked by diminishing the viscosity of the blood. I regard this method of diuresis by drinking large quantities of the moderately mineralized sodium chloride free water as far superior to treatment by baths, sweating and the heavy drinking of actively purgative and highly mineralized waters. Contraindications to the treatment are very low blood-pressure, grave valvular cardiac disease and profound anemias. In certain juvenile epilepsies, particularly those with digestive disturbance and faulty elimination, I am told that the use of the waters is of the greatest value in diminishing the number of seizures, and in a few cases they seemed to be of lasting benefit.

DISCUSSION.

DR. WILLIAM S. NEWCOMET: Dr. Taylor mentioned the fact that possibly some of the value of these waters was due to the radioactivity that they possessed and which during transportation was lost, this accounting for the results obtained at the springs. It might be mentioned that most of these waters are radioactive, but more especially those that come from deep wells.

Dr. H. B. Allyn: I have not had the pleasure of visiting Vittel, but for some years have been using here the waters for gout, gouty conditions, neuralgias and the general neurasthenic states accompanying gout, and for gravel, and I have found them the best of any heretofore employed for these purposes.

Dr. James M. Anders: I have prescribed this water in selected cases and have found it to be an efficient diuretic. It contains no chloride of sodium, and the diet prescribed in the course of treatment is a salt free or salt poor diet, which two facts, in a large measure, explain the efficacy of the water, both as a diuretic and eliminator of poisonous wastes. Certain elements of the life at Vittel, —restricted diet, walks, freedom from care and responsibility must be given weight These waters are not in the slightest degree laxative, nor to any extent diaphoretic. Treatment, therefore, is based largely upon the diuretic action of the water. The results, it seems to me, corroborate in a striking manner the generally accepted opinion that the kidneys are the principal eliminating channels of the body.

Dr. Taylor, closing: I have nothing to add, except that Vittel is now becoming very popular, but is patronized almost entirely by French speaking people. During my stay I did not see half a dozen Americans or fifty English people.

Dr. Alfred Gordon read a paper on,

CEREBROSPINAL FLUID AND A SPECIAL METHOD OF TREATMENT OF ESSENTIAL EPILEPSY.

The value of lumbar puncture and the importance of study of cerebro-spinal fluid for diagnostic and therapeutic purposes are described and mention made of toxic products usually present in the blood and in the cerebro-spinal fluid in epilepsies. Attention is called to the work of Geni and Donath with reference to the toxicity of blood serum in epileptic individuals. It is then estimated that if the cerebro-spinal fluid of one epileptic patient could be injected in another epileptic patient, thus bringing into the economy two opposing toxins, gratifying results might be secured. Four patients were subjected to the treatment in a period of ten months. There has been decided diminution in number of attacks and in severity, with general improvement in mentality and all functions. The treatment is shown to be far superior to any other. Rules are outlined for future investigation in this field of work.

Dr. Morris J. Lewis: Dr. Gordon does not mention whether in any of the cases the Wassermann reaction was present or not. In a rather large experience I have found this reaction present in quite a large proportion of cases, especially in cases developing after puberty. I would hesitate about using spinal fluid in the manner mentioned, and especially, without knowing most definitely that there was no communicable disease present.

Dr. Gordon, closing: Unquestionable hesitation should be felt in any new treatment. I did not introduce the fluid into the spinal cord, but subcutaneously. I simply take this opportunity to present to the profession the favorable results so far obtained, which, so far as I know, have not been gained by any other method. The Wassermann test was made and found negative.

Book Reviews.

A Text-Book of Histology. By Frederick R. Bailey, A.M., M.D., Fourth revised edition. pp. xviii+644. Figs. 384. New York: William Wood and Company. 1913.

In the new edition of Bailey's Histology "the text has been thoroughly revised and some parts of it rewritten"; fifty-five pages and thirty figures have been added, but it has seemed unwise to alter the general plan of so successful a text-book. This plan consists in presenting a clear and simple account of the well-known facts of histology. Indeed, reference is frequently made to the sharply contended issues of the day, but the author usually writes of them with the fairness and unconcern of a noncombatant and consigns them to small type. The development of the various tissues and organs is also lightly treated, usually in the form of postscripts to the accounts of the corresponding structures in the adult. What to do with the nervous system has long been a puzzling question for the writers of histological text-books. Stöhr, for example, deals with it very briefly and refers his readers to special treatises. Bailey's Histology, however, includes a special treatise of 132 pages, written and revised by Dr. O. S. Strong, in which the nuclei and fiber-tracts are concisely described. This thorough treatment of the central nervous system is perhaps the most notable feature of the book.

Among the illustrations one sees many old familiar figures, since two-thirds of them have been gathered from other sources, including many from the standard text-books. As stated in the preface,—"The uselessness of redrawing perfectly satisfactory illustrations has led the writer to borrow freely." His indebtedness is correspondingly great, but the ignominy of appearing like Aesop's daw in peacock plumes has been avoided by frankly acknowledging the source of every figure. Both figures and text have been well printed, and the volume is attractive, though somewhat heavy.

Medical Jurisprudence from the Judicial Standpoint. By W. Ramsay Smith, M.D., C.M., D.Sc., F.R.S. (Edin.). London: Stevens and Sons, Limited. 1913.

The monograph aims to view "the principles and practise of medical jurisprudence from the point of view of the court, the bench, and the judge." Such an exposition by a physician argues unusual and intimate familiarity with the law, and this indeed the author appears to possess. The English common law is the basis of the work; but its colonial and American

modifications, together with the civil law, are also considered. The subject is illustrated with representative cases from actual experience. The volume should be of value to any physician who is in any way to be involved in legal procedure.

Anatomy and Physiology. A Text-Book for Nurses. By JOHN FORSYTH LITTLE, M.D. Philadelphia and New York: Lea and Febiger 1914.

This excellent first-year text-book for nurses is a useful contribution to the teacher's working material. It is well arranged, and is illustrated with 147 engravings and 4 plates, many of them taken from Gray's Anatomy. There is a list of appropriate questions at the end of each chapter; and at the end of the book are tables of weights and measures and a useful glossary. The volume is published in the Nurses' Textbook Series.

Manual of Surgery. By ALEXIS THOMSON, Professor of Surgery, University of Edinburgh; and Alexander Miles, surgeon Edinburgh Royal Infirmary. Volume Third. Second edition. With 255 illustrations. Edinburgh, Glasgow, and London: Henry Frowde and Hodder and Stoughton. 1913.

This third volume, on operative surgery, was first added to the fourth edition of this standard Scottish work, and was reviewed in the issue of the JOURNAL for Nov. 21, 1912 (Vol. clxvii, p. 738). In this second edition of the new volume, the Basle anatomic nomenclature has been adopted, the older terminology being also retained in brackets and the equivalents included in the index. The number of illustrations has been increased from 220 to 255, and the total of pages from 565 to 620. A chapter has been added on arterial suture. The volume securely maintains the immediate position of acceptance which it found on first publication.

Tropical Medicine and Hygiene. By C. W. DANIELS, M.B. Cantab., F.R.C.P., Lond. In three parts, with colored and other illustrations. Part I. Diseases Due to Protozoa. Second edition. New York: William Wood and Company. 1913.

The first edition of this volume, by Daniels and Wilkinson, was reviewed in the issue of the JOURNAL for June 2, 1910 (Vol. clxii, p. 755). In this second edition, from which the name of the junior author has disappeared, an alteration has been made in the arrangement of the material whereby the amount of repetition is diminished. The subjects of prophylaxis, treatment, and nursing are more extensively considered in connection with each disease. The terminal appendices have been reduced from five to three by the withdrawal of the classification of the *diptera*, but the total number of pages is increased from 264 to 277. The two colored plates have been improved and transferred from the end of the book to the front; and the number of figures in the text has been increased from 62 to 73, and an introductory list of illustrations added. The book should easily maintain its position of value in the literature of tropic diseases.

Principles of Surgery. By W. A. BRYAN, A.M., M.D., professor of surgery and clinical surgery at Vanderbilt University, Nashville, Tennessee. Original illustrations. Philadelphia and London: W. B. Saunders Company. 1913.

A book of seven hundred pages, well printed, and adequately illustrated with pictures and microphotographs, limiting itself entirely to "Principles of Surgery"; eliminating, therefore, operative technic and condensing treatment into brief paragraphs, sometimes sentences, which are to be found at the end of individual chapters. It is thus possible for a man of Dr. Bryan's experience and knowledge to condense a large amount of information within a small compass. It is the new example of the reaction against enormous systems of surgery which have been recently so common.

The reviewer desires to recommend this book enthusiastically. It is one of the most successful examples of condensation which we have seen in years. It is comprehensive, and yet eliminates everything that is not essential. Its brief passages on treatment are admirable in tone and in accordance with the most advanced views. For instance, anthrax. It has been shown that the means formerly employed, of excision or cauterization, rendered the dislodgment of the bacteria from the malignant pustule much more probable than if no such interference had been made. Even so insignificant trauma as may be done by hypodermic injections or attempting to lift the eschar, are interdicted. In other words, eliminating operative treatment.

The chapters on tumors and cysts constitute about one-third of the book and again attract the reader by a combination of brevity and thoroughness. The writer's purpose has been to put the fundamental facts before the student and the physician in a simple and logical way, and thereby to lay a foundation upon which an intelligent understanding of the immense details of practical work may be built.

The book may be studied with benefit by every man who has had two years of medical training.

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GENERAL PARESIS AND THE DIFFICULTIES IN ITS TREATMENT.

THE recent advances which have been made in our knowledge of syphilis have surely come to us in quick succession. Our progress in the knowledge of malaria and trypanosomiasis should be a source of great optimism for us. Our advances in the acute contagious and infectious diseases have been noteworthy, but in few diseases have we had such rapid progress as in syphilis, and particularly in syphilis of the nervous system. First we have Schaudinn, not a physician, but a zoologist, discovering the spirocheta pallida, latterly and more properly called the treponema pallida, which is now generally acknowledged to be the causative organism of syphilis. It was not long before this was followed by the Wassermann reaction and its modifications with the blood serum, as a laboratory test for past or present, latent or active syphilis. Then we have the application of chemical, serological, and cytological methods to the spinal fluid for the diagnosis, prognosis and treatment in acute and chronic infectious conditions of the central nervous system. The investigation of the cerebrospinal fluid now consists of the Wassermann reaction, the tests,—Noguchi, Nonne-Appelt and others,—for increased globulin, and the quantitative and qualitative cell count, especially pleocytosis and lymphocytosis. Recently the Lange gold solution test has been added to our laboratory armamentarium.

In pathology, too, we have been making great headway. This applies particularly to the pathology of general paresis and locomotor ataxia, the so-called para- or metasyphilitic diseases. Ordinarily cerebrospinal syphilis presents a pathological lesion which is confined mainly to the blood-vessels and meninges, with the well-known endarteritis of Heubner, with gummatous exudation and lymphocytic infiltration, whereas, in the so-called parasyphilitic diseases, namely, general paresis and locomotor ataxia, we find the changes in the neurones or nerve cells. The first-named condition, cerebrospinal syphilis, is, accordingly, essentially a lesion of the interstitial connective tissue. The second group, paresis and tabes, are, on the other hand, essentially lesions of the parenchymatous tissues of the nervous system. It was thought, for this reason, that the two contrasting conditions could not be due to exactly the same cause acting in precisely the same way, but that, although tabes and paresis showed a decided relationship to syphilis, they were not caused directly by the spirocheta pallida, but were due, in some unknown way, to toxins acting upon the nerve cells after the spirochetes had spent their force, after the fashion, we may say, of neuritis or paralysis following in the wake of diphtheria.

Noguchi and Moore[1] have, however, recently found the spirochete in the brains of twelve out of seventy patients who had had frank general paresis, as proved by the clinical, laboratory and pathological findings. Later Noguchi[2] reported the finding of the spirochete in forty-eight brains among two hundred of general paresis, and in one spinal cord out of twelve of locomotor ataxia. Noguchi also infected rabbits directly with the tissue from general paretics and produced a perfectly typical luetic lesion in the testicle of the rabbits so infected, and was able to recover the spirochetes from these lesions.[3] The finding of the spirochete in the brain of paretics has since been confirmed by others, notably Marinesco. Forster and Thomasczewski[4] resorted to the method of brain puncture in the living general paretic, aspirated cortical substance from the brain and demonstrated the presence of living spirochetae pallidae in the cortical tissue from the brains of these living paretics. From the experimental

[1] *Journal of Experimental Medicine*, Feb., 1913, p. 232.
[2] *Journal of Cutaneous Medicine*, Aug., 1913, p. 543.
[3] *Journal of American Medical Association*, July 2, 1913, p. 85.
[4] *Deutsche Med. Wochenschrift*, 1913, Vol. xxxix, No. 26.

investigations and findings of such scientific and reliable workers in the field of experimental medicine we may conclude, at least in the case of general paresis, that syphilis is the direct causative factor in the production of this strange disease.

The findings in paresis show that the organism is imbedded deep within the tissues, far away from the blood vessels, and practically in direct contact with the nerve cells themselves. There is, further, an accumulation or infiltration of lymphocytes about the blood vessels, especially in the perivascular lymphatic channels. The reason why the spirochete has not been found in the past seems to be because the examination was directed mainly to the regions of the blood vessels, and the examinations were not as conscientious, prolonged and intensive as they should be. Moreover, in paresis the spirochetes are difficult to see, even with the modern staining methods.

The reason for the resistance of paresis to treatment by ordinary anti-syphilitic methods is not easy to explain, but recent study discloses the following facts: The spirochetes are so deep in the tissues that they are not easy to get at through the blood stream, which difficulty is further enhanced by the infiltration of the adventitial spaces, the so-called perivascular lymphatic spaces, with leucocytic invasion, and hence an interference with diffusion of spirocheticidal poison (mercury, arsenic, salvarsan). It is particularly for this reason that the results produced by mercury and salvarsan, intramuscularly or intravenously, have not been encouraging in paresis. It is also supposed that in paresis we may have a different kind of organism, having from the very beginning a different affinity for nervous tissue or a greater resistance, or the same species of organism may have, as we find in ordinary cerebrospinal syphilis, for some reason or other invaded the deeper structures with its destructive effects upon the parenchymatous nervous tissues and become unduly resistant.

The problem which here presented itself was how to reach the spirochetes buried deep within the brain substance and apparently but little accessible by way of the blood stream. Certain observations having shown that salvarsan, after being administered intravenously, cannot be recovered in the cerebrospinal fluid withdrawn by means of lumbar puncture, we were justified in concluding that the possible spirochetes in the cerebrospinal fluid were not reached by the salvarsan. It was logical, therefore, to expect that when this drug, in some way or other, is injected directly into the subdural space, more direct contact with the spirochetes might be obtained. It was found, however, that the drug salvarsan, when diluted with salt solution and injected into the spinal canal (subdural space), was injurious and capable of doing serious injury to the nerve structures. It may be noted here that recently (March, 1914) it was reported that there had been seven deaths from neosalvarsan in Los Angeles, California. Investigation disclosed the fact that the drug neosalvarsan had been mixed with salt solution and given intraspinously. Swift and Ellis, however, overcome these difficulties by using the serum taken from other syphilitic patients or from the same patient, the latter having received one hour previously an intravenous injection of salvarsan or neosalvarsan.[5] Thus hetero- or autosalvarsanized or neosalvarsanized serum was being employed, this being further diluted with normal saline solution. Lately certain modifications, such as the intraspinous injection of undiluted auto-salvarsanized serum, have been tried by various workers in the field of intraspinal therapy.

For the technic and results of this method of treatment the reader is referred to the original articles by Swift and Ellis and others.[6]

The lesson to be learned from a consideration of the facts here enumerated is this: We should do our utmost to attempt to make an early diagnosis in general paresis, by both clinical and laboratory examination. As soon as the diagnosis is made treatment should be instituted. This should be vigorous anti-syphilitic treatment, mercury and potassium iodide, and salvarsan or neosalvarsan, intravenously and intraspinously, being employed. The case should be watched and checked up by repeated examinations clinically and in the laboratory. The Wassermann reaction in the cerebrospinal fluid and the cell count are especially important guides as to prognosis and the results of our therapeutic efforts. Under these conditions it is at least possible that the results may be more favorable than hitherto reported.

[5] *New York Medical Journal*, July, 1913; *Archives of Internal Medicine*, Sept. 15, 1913; *Journal of Experimental Medicine*, Oct., 1913, p. 428 and 435.

[6] See also Ayer, BOSTON MED. AND SURG. JOUR., March 26, 1914, p. 452.

MEDICAL LEGISLATION. SUPPRESSION OF ILLEGAL TRAFFIC IN HABIT-FORMING DRUGS.

THERE are at present pending, before both the national congress and the legislature of this Commonwealth, bills aiming to suppress the illegal sale of habit-forming drugs. The extent to which such drugs, notably morphia and cocaine, are consumed by habitués constitutes a serious menace to the health as well as the morals of the community, and any legislative attempt to control their sale is therefore important and deserving of medical attention.

Of the two measures of this type now under consideration by the Massachusetts General Court, one prohibits druggists from filling any prescription containing a habit-forming drug, the other makes it a criminal offence to dispense such drugs for other than legitimate medicinal use. The first is aimed at those habitués who, having somehow obtained a physician's prescription for morphia or cocaine, continue to employ it indefinitely as a permanent means of securing the drug. The second is aimed at a limited, but unfortunately existent, class of irregular, self-styled, misguided practitioners, who are willing to issue such prescriptions to enable habitués to obtain drugs illegitimately. It seems that these are both desirable measures and should be enacted into law.

The measure on this subject now pending before the national congress is the so-called "Harrison Anti-Narcotic Bill." The provisions of this bill may essentially be summarized as follows:—

Sect 1. It shall be unlawful for any person to produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away any of the aforesaid drugs or articles (preparations of opium or coca, and hypodermic syringes) without having registered and paid the special tax provided for in this section.

Sect. 2. It shall be unlawful for any person to sell, barter, exchange, or give away any of the aforesaid drugs or articles except in pursuance of a written order of the purchaser or person to whom such article is given, on a form to be issued in blank for that purpose by the Commissioner of Internal Revenue.

Sect. 3. Any person who shall be registered in any internal-revenue district under the provisions of section one of this act shall, whenever required so to do by the collector of the district, render to the said collector a true and correct statement or return, verified by affidavit, setting forth the quantity of the aforesaid drugs and articles received by him in said internal-revenue district during such period immediately preceding the demand of the collector, not exceeding three months, as the said collector may fix and determine; the names of the persons from whom the said articles were received; the quantity in each instance received from each of such persons, and the date when received.

Sect. 4. It shall be unlawful for any person who shall not have registered and paid the special tax as required by section one of this act to send, ship, carry, or deliver any of the aforesaid drugs or articles from any State or Territory, the Territory of Alaska, the District of Columbia, or any insular possession.

Sect. 5. (Provides for the filing of forms and prescriptions.)

Sect. 6. The provisions of this act shall not be construed to apply to the sale, distribution, giving away, or dispensing of preparations and remedies which do not contain more than two grains of opium, or more than one-fourth of a grain of morphine, or more than one-twelfth of a grain of heroin, or more than one grain of codeine, or any salt or derivative of any of them in one fluid ounce, or, if a solid or semi-solid preparation, in one avoirdupois ounce; or to liniments, ointments or other preparations which are prepared for external use only, except liniments, ointments and other preparations, which contain cocaine or any of its salts or alpha or beta eucaine or any of their salts or any synthetic substitute for them: Provided, That such remedies and preparations are sold, distributed, given away or dispensed as medicines and not for the purpose of evading the intentions and provisions of this act: Provided, That the amount of any drug herein mentioned shall be shown upon the label of the container of such remedy or preparation. The provisions of this act shall not apply to decocainized coca leaves or preparations made therefrom, or to other preparations of coca leaves which do not contain cocaine.

Sect. 7. All laws relating to the assessment, collection, remission and refund of internal-revenue taxes, including section 3229 of the Revised Statutes of the United States, so far as applicable to and not inconsistent with the provisions of this act, are hereby extended and made applicable to the special taxes imposed by this act.

Sect. 8. It shall be unlawful for any person not registered under the provisions of this act, and who has not paid the special tax provided for by this act, to have in his possession or under his control any of the aforesaid drugs or articles; and such possession or control shall be presumptive evidence of a violation of this section, and also a violation of the provisions of section one of this act.

Sect. 9. Any person who violates or fails to comply with any of the requirements of this act shall, on conviction, be fined not more than

$2,000, or be imprisoned not more than five years, or both, in the discretion of the court.

Sect. 10. The commissioner of internal revenue, with the approval of the secretary of the treasury, is authorized to appoint such agents, deputy collectors, inspectors, chemists, assistant chemists, clerks and messengers in the field and in the Bureau of Internal Revenue in the District of Columbia as may be necessary to enforce the provisions of this act.

Sect. 11. The sum of $150,000, or so much thereof as may be necessary, shall be, and hereby is, appropriated, out of any moneys in the treasury not otherwise appropriated, for the purpose of carrying into effect the provisions of this act.

Sect. 12. Nothing contained in this act shall be construed to impair, alter, amend or repeal any of the provisions of the act of congress approved June 30, 1906, entitled "An act for preventing the manufacture, sale, or transportation of adulterated or misbranded, or poisonous or deleterious foods, drugs, medicines, and liquors and for regulating traffic therein and for other purposes" and any amendment thereof, or of the act approved February 9, 1909, entitled "An act to prohibit the importation and use of opium for other than medicinal purposes," and any amendment thereof.

The purpose of this bill is assuredly good, and in the main its provisions seem excellent. There are certain aspects, however, in which it appears questionable whether they will accomplish the end desired. In the first place Section 6 has been principally criticised, and from two opposite points of view. On the one hand, it is pointed out that this section exempts precisely the class of preparations which it is most desirable to suppress, namely, those containing small amounts of narcotic drugs from which, however, addiction may easily be acquired or maintained. On the other hand, this section is criticised because it allows only so proportionately small a dose of heroin in comparison with that of morphine.

In the second place, the Harrison bill is criticised because it does not allow a physician to supply himself with morphia or cocaine for his own dispensation in his office or on visits, without registering with the Internal Revenue Department. Such registration, it is contended, would be an inconvenience and hardship, and it is urged that manufacturers should be given more leeway in supplying registered physicians.

The first of these three objections seems by far the most important. If it be true that drug-habits are to any extent fostered by preparations of the exempted class, then these exemptions should certainly be restricted or entirely removed. The bill as a whole, however, would doubtless be beneficial, and if amended in the light of expert criticism should prove a valuable measure of national legislation towards restriction of the illegal traffic in habit-forming drugs.

VINDICATION OF ANTITYPHOID INOCULATION.

Much interest has been felt in the case of Clarence Panzer, a young man of Woodhaven, Borough of Queens, who died on April 1 after an illness of two weeks, the cause of death assigned by the attending physician being typhoid fever. As Mr. Panzer, who was a member of the 13th Regiment, New York National Guard, had, in company with other members of the regiment, been inoculated against typhoid (though a considerable time before his illness), the Health Department, although threatened with a suit for damages, very properly refused to issue a burial permit until an autopsy had been made. The case was accordingly placed in the coroner's hands, and an autopsy, made on April 2, showed conclusively that the disease to which the patient had succumbed was not typhoid fever, but malignant ulcerative endocarditis. It had also been previously known that the patient was the subject of organic heart disease. In this connection it seems appropriate to quote the following editorial from the Boston *Herald*, as a gratifying example of sound medical opinion in the lay press:

"The infallibility of typhoid vaccination as a preventive has received confirmation from an unusual New York case. A member of the coast artillery recently died of an illness diagnosed as typhoid. As he had previously been inoculated, his death attracted much attention. The anti-vaccinationists, who extend their opposition to all serums, made much of the case. They cited it in contravention of last year's army records that show but two typhoid cases, in both of which inoculation had been doubtful.

"A post-mortem examination, obtained with difficulty, showed that the New York private was not a victim of typhoid. The autopsy revealed an unusual vegetation in the heart which had caused the symptoms closely akin to those of typhoid. The error was purely one of diagnosis by the attending physician. The value of anti-typhoid vaccination remains unshaken. The incident illustrates, moreover, the duty of relatives to allow an autopsy when the interests of science demand it."

MEDICAL NOTES.

THE SOLLY TUBERCULOSIS SOCIETY.—On January 24, 1914, the physicians of Colorado Springs, particularly those interested in the care and treatment of tuberculosis, met at luncheon and formed a society for the advancement in scientific treatment and prevention of tuberculosis. The organization was named "The Solly Tuberculosis Society" in honor of the late Dr. S. Edwin Solly, of this city.

At the regular monthly meetings of the society some particular phase in the treatment of tuberculosis was presented in the form of a symposium covering all the latest writings in various modern languages.

The first regular meeting of the society was held Feb. 17, 1914. At this meeting the question of the influence of altitude and climate in the cure of tuberculosis was presented for discussion.

LONDON DEATH-RATES IN FEBRUARY.—Statistics recently published show that the total death-rate of London in February was only 14.8 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 20.3 in Holburn, a central slum, and the lowest was 10.4 in Hampstead, an open suburb on the north.

AWARD OF FOTHERGILL MEDAL.—It is announced that the Fothergill gold medal of the London Medical Society for 1914 has been awarded to Dr. John George Adami, F.R.S., LL.D., Strathcona professor of pathology and bacteriology at McGill University, for his work on pathology and its practical application to medicine and surgery.

A MUNIFICENT BEQUEST.—It is announced from Philadelphia on April 8 that under the will of the late Dr. Louis A. Dühring, for many years professor of dermatology at the University of Pennsylvania, the university will receive approximately $1,000,000. This munificent bequest is to be divided between the general library, the university hospital, the departments of dermatology, archeology and paleontology, and the College of Physicians of Philadelphia.

TRANSMISSION OF BUBONIC PLAGUE.—Report from New Orleans, La., on April 6, states, on the authority of Dr. John Guiteras, director of sanitation for the republic of Cuba, that the recent cases of bubonic plague in Havana are believed to have been transmitted not by rats but by fleas conveyed in sacks of sugar.

A CENTENARIAN.—Edward Jones, who died on April 7 at Niles, near Youngstown, Ohio, is said to have been born in 1807. He was a Welshman and a sailor, but retired from the sea some years ago.

A VOTING CENTENARIAN.—Miss Margaret Swinbank, of Sycamore, Ill., who is said to have been born in 1813, cast her first municipal ballot at the general election on April 7. She is believed to be the senior woman voter in the United States.

ILLNESS OF THE KING OF SWEDEN.—Report from Stockholm states that King Gustave of Sweden was operated on April 9 for gastric ulcer. Gastro-enterostomy was done, and the royal patient is reported as progressing favorably.

GERMAN CONGRESS FOR INTERNAL MEDICINE.—The thirty-first German Congress for Internal Medicine will be held next week at Wiesbaden, from April 20 to 23, inclusive, under the presidency of Dr. Von Romberg, of München.

"The principal papers to be presented are: On Monday, April 20, "Nature and Treatment of Sleeplessness," the reporters of which subject are Herren Gaupp (Tübingen), Goldschneider (Berlin) and Faust (Würzburg). On the third day, Wednesday, April 22, at 10 a.m., by the desire of the president, Herr Werner (Heidelberg) will present a comprehensive address upon the radiation treatment of new growths of the internal organs, and on the fourth day, Thursday, April 23, at 11 a.m., Herr Schottmüller (Hamburg) will deliver an address on "The Treatment of Sepsis."

BUBONIC PLAGUE AND YELLOW FEVER IN ECUADOR.—Report from Panama on April 4 states that 21 deaths of yellow fever have recently occurred at Esmeraldas, Ecuador, among the federal troops who are holding that city; and that several cases of yellow fever and bubonic plague have been notified recently at Guayaquil.

A SCHOOL CLINIC AT SOUTHAMPTON.—In a recent address, Dr. R. E. Lauder, medical health officer of Southampton, England, describes the methods of school inspection there employed. In 1912, medical treatment by private physicians

was recommended for 1133 children. In only 328 cases was the advice followed. In 1913, therefore, the city established a municipal clinic and dispensary, in which common diseases of the teeth, eyes, nose, throat, ears, and skin are treated. A full-time dentist is there employed, at a salary of £300 a year. Visiting nurses investigate home conditions and follow up the pupils with instructions.

NEW JERSEY STATE HOSPITAL.—The recently published thirty-eighth annual report of the managers and officers of the New Jersey State Hospital, at Morris Plains, records the work of that institution for the year ended Oct. 31, 1913. During this period 2847 patients were under treatment, of whom 195 died and 84 were discharged as recovered. The institution is seriously overcrowded, and among its urgent needs are new and additional buildings and an incinerating and water purification plant.

BOSTON AND NEW ENGLAND.

SCARLET FEVER IN BOSTON.—Scarlet fever continues epidemic in Boston. Since last December there have been 20 deaths of the disease, and 555 cases are now under treatment.

SCARLET FEVER IN COHASSET.—Scarlet fever continues epidemic in Cohasset, Mass. Three new cases were reported last week. All the schools, churches, and the town hall and library have been closed.

GLANDERS IN BEVERLY.—Glanders is at present epizoötic among working horses in Beverly, Mass. Ten deaths from the disease have already occurred, and the local public drinking fountains have been ordered closed.

SMALLPOX ON A SPANISH STEAMER.—A case of smallpox was discovered recently in this port aboard the Spanish steamer *Inez*, recently arrived from Barcelona. The vessel was fumigated, the crew vaccinated, and the patient transferred to the quarantine hospital.

SCARLET FEVER IN BRIDGEWATER.—Scarlet fever is at present epidemic in Bridgewater, Mass., where 42 cases of the disease have already been reported. All schools have been ordered closed.

SMALLPOX IN BROCKTON.—Smallpox is at present mildly epidemic in Brockton, Mass. Three new cases of the disease were reported on April 1.

TWO LIVING BROCKTON CENTENARIANS.—Abraham Weiner, of Brockton, Mass., who is said to have been born in Odessa, Russia, on April 1, 1809, celebrated recently his supposed one hundred and fifth anniversary. He served for 25 years in the Russian Army before migrating in 1864 to the United States. He has five children.

Morris D. Shimelovitch, of Brockton, Mass., is said to have been born on Feb. 8, 1811. He is in excellent health and walks out daily.

INVESTIGATION OF DRUNKENNESS IN MASSACHUSETTS.—The recently published report of the commission, appointed in August, 1913, to investigate drunkenness in Massachusetts, records the work and recommendations of that body. A series of public hearings was held and numerous measures considered. The first part of the report is concerned with ascertaining and stating the nature and magnitude of the problem, the second with discussion of suggestions for the prevention of drunkenness. The commission makes ten specific recommendations for legislation, embodied in six proposed bills which are printed in an appendix. It believes that the method of committing persons to penal institutions for drunkenness is wrong in principle and should be abandoned.

HUNTINGTON HOSPITAL FOR CANCER RESEARCH.—The recently published first annual report of the Collis P. Huntington Memorial Hospital for Cancer Research records the work of that institution for the fiscal year ended June 30, 1913. During this period 75 in-patients and 115 out-patients were treated. The number of deaths is not stated. Various lines of research were pursued and two papers on the results have been published.

ABOLITION OF VITAL STATISTICS DIVISION.—The mayor of Boston has recently abolished the division of vital statistics in the health department of this city, thereby retiring Dr. William H. Davis, the statistician who held post as its chief.

COÖPERATIVE SUBURBAN BOARD OF HEALTH.—The Coöperative Suburban Board of Health,

which was organized on April 1, 1913, has just completed successfully the first year of its activities. It was designed to carry on the health work, either in whole or in part, of the towns of Wellesley, Belmont, Framingham, Weston, Needham, Melrose, Winchester, and Canton, Mass. By this combination, which was originally suggested by Prof. Earle B. Phelps of the Massachusetts Institute of Technology, each of the townships has secured far more extensive and efficient health supervision than would have been possible for it to maintain alone, and at an aggregate cost considerably less than that previously spent for this purpose. This first year has abundantly justified the theory of this plan of health work, which might to advantage be imitated in other rural and suburban town groups throughout the country.

Hospital Bequests.—The will of the late Eliza Callahan Cleveland, of Jamaica Plain, Mass., which was filed in probate on April 3, contains a bequest of $3000 to St. Luke's Hospital for Women, Shanghai, China.

The will of the late Elizabeth S. Hall, which was probated on April 7 at Exeter, N. H., contains a bequest of $10,000 to the building fund of the Exeter Cottage Hospital.

The will of the late Henry C. Whitcomb, which was recently filed at the Suffolk probate court, contains a bequest of $20,000 to the Home for Aged Couples, Boston.

The will of the late Frank Wood, of Ashmont, Mass., which was filed recently at the Suffolk registry of probate, creates a trust for the establishment in Dorchester, Mass., of a home for convalescents and incurables. For this purpose the testator gives 40 acres of land and $50,000.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending April 7, 1914: Diphtheria, 54; scarlatina, 147, of which 13 were non-residents; typhoid fever, 7, of which 1 was non-resident; measles, 86; tuberculosis, 38, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 17.15.

NEW YORK NOTES.

Opening of Dispensary, Syracuse Medical College.—The Syracuse University Medical College celebrated the opening of the new Dispensary March 30, 1914. During the afternoon the building was open for inspection. The building has specially designed rooms to accommodate the following clinics: On the first floor, obstetrics and gynecology, pediatrics, genito-urinary diseases, orthopedics, and tuberculosis, with the pharmacy and offices for clerks, medical superintendent and staff. On the second floor, general surgery, proctology, nose, throat and ear, dermatology and syphilis, internal medicine, psychiatry and neurology, and ophthalmology. In the basement are the x-ray room, an orthopedic shop, a milk-distributing station and the manufacturing pharmacy. The third floor is occupied by the laboratories for chemical and microscopical diagnosis, bacteriology, and research work. A small laboratory for instant use is provided with each large clinic. The furniture and equipment is of the latest model. In the evening a public meeting was held at which Chancellor Day formally presented the use of the building and equipment to the Syracuse Free Dispensary Association, which will continue the conduct of the Dispensary as a charity, while vesting in the faculty of the College of Medicine the organization and administration of the medical and surgical service. The address of the evening was made by Dr. Richard C. Cabot of the Harvard Medical School, who with his characteristic forcefulness impressed upon the audience the importance of dispensary work and of the great advances in medical practice which would be gained by team work.

Reorganization of Presbyterian Hospital.—At a meeting of the trustees of Columbia University, held on April 6, it was announced that the Presbyterian Hospital, which is in alliance with the medical department of the university, had so reorganized its administrative work as to provide for single responsibility for both medical and surgical services. In accordance with this plan, Dr. Theodore Janeway, Bard professor of the practice of medicine in the College of Physicians and Surgeons, has been appointed medical director of the hospital, and Dr. George E. Brewer, surgical director. The pathological department of the hospital will be under the direction of Dr. William G. MacCallum, professor of pathology. At this meeting it was also announced that a gift of $2,000, for surgical research, had been received from an anonymous donor.

Death-Rate for Week Ending April 4, 1914.—There were 1612 deaths and a death-rate of

15.06 per 100 of the population reported the past week as against 1512 deaths and a rate of 14.68 for the corresponding week of 1913, an increase in the absolute number of deaths of 100 and in the rate of .36 of a point, equivalent to a relative increase of 39 deaths. The following causes showed a decreased mortality: Measles, scarlet fever, cerebro-spinal meningitis, diarrheal diseases under five years of age, influenza, bronchitis, broncho-pneumonia, pulmonary tuberculosis, Bright's disease and nephritis; the mortality from whooping cough and typhoid fever was the same as that of last year. The following causes showed an increased mortality: Diphtheria and croup, digestive diseases other than diarrhea, organic heart disease, lobar pneumonia, diseases of nervous system, violence and all other causes. The mortality of infants under one year of age showed an increase of 27 deaths, between one and five years a decrease of 38 deaths, between five and sixty-five years of age an increase of 43 deaths, and at sixty-five years and over an increase of 68 deaths.

The death-rate for the first fourteen weeks of 1914 was 15.57 per 1000 of the population as against 15.77 for the corresponding period of 1913, a decrease of .20 of a point.

APPOINTMENT OF DR. WILBUR.—It was announced at Albany on April 6 that Dr. Cressy L. Wilbur, of Washington, D. C., chief statistician of the United States census bureau, has been appointed head of the new division of vital statistics in the New York state department of health, at a salary of $4000 a year.

MEDICAL JUDGES AND INSANE CRIMINALS.—A bill has recently been brought before the state senate at Albany, providing that in each county there shall be a medical judge who shall attend any trial at which medical evidence is taken concerning the sanity of a party to an action, and shall give medical advice to court and jury, his instructions to have the same weight as those of a trial judge. It is also proposed that the clause in the penal code enabling a verdict of "not guilty by reason of insanity" be changed to "guilty but insane." This would prevent the acquittal of dangerous criminal lunatics, and would also prevent insane criminals from securing writs of *habeas corpus*. It is reported, however, that the Governor will veto this bill on the ground that it would virtually abolish capital punishment. The measures are recommended by the State Bar Association.

ANTI-PNEUMOCOCCUS SERUM.—A press report on March 25 states that the Rockefeller Institute for Medical Research has announced the preparation by Dr. Rufus Cole of an anti-pneumococcus serum for the treatment of pneumonia. The serum is prepared like that of diphtheria, from the horse.

RECOMMENDATIONS FOR BELLEVUE HOSPITAL.—The hospital investigating committee of the Board of Estimate and Apportionment has made a report in which are described the deplorable conditions which have existed at the old "dead house" at Bellevue Hospital, N. Y., on account of the lack of room, and recommends the appropriation of $12,000 for the maintenance of a new one. It is also recommended that the state law concerning autopsies be amended so as to enable hospitals to make a much larger percentage of autopsies than is now possible. The reports goes on to say: "Bellevue Hospital has built and equipped the finest pathological building in the United States, and probably the best in existence. It is provided with every modern facility for performing autopsies and following up such autopsies by experimental work upon tissues; but, although the hospital has provided itself with this exceptionally well-designed and thoroughly equipped building, it is practically unable to use it, because of the inability to secure permission to perform autopsies. So long as it is impossible to perform a larger percentage of autopsies medical knowledge in the United States will lag behind that of Europe, and advancement will naturally be slow. . . The conclusions to be drawn from the large percentage of errors in clinical diagnoses revealed in the records of Bellevue are not that the findings of the attending physicians are carelessly made and recorded, but rather that too great reliance is placed upon inexperienced house physicians and internes, and also that the current knowledge necessary to make clinical diagnoses which shall approach accuracy is insufficient.

Current Literature

MEDICAL RECORD.

MARCH 28, 1914.

1. CLARK, L. P. *Remarks upon Mental Infantilism in the Tic Neurosis.*
2. WOLDERT, A. *Determination of the Blood-Pressure as an Aid to Diagnosis and Prognosis in Certain Diseases.*
3. DICKINSON, G. K. *The Trail of the Serpent.*

4. LEWISON, C. G. *Nerve Injuries.*
5. *CLARK, J. B. *A Case of Syphilis Cured Apparently by Accident.*
6. PETERSON, E. A. *Streptococcic Infection of the Cervix Uteri.*

5. Clark reports a case of fresh syphilis in which, owing to a misunderstanding, mercurial ointment was rubbed into the skin of the entire body regularly for four days. There were no symptoms of mercurial poisoning, and the luetic symptoms disappeared in an incredibly short time. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

MARCH 28, 1914.

1. TYSON, J. *Treatment of Chronic Nephritis.*
2. BRYANT, W. S. *The Conservation of the Functions of the Ear, Nose and Throat.*
3. BUERGER, L. *Obstructions in the Lower Ureter.*
4. KEILTY, R. A. *A Teaching Classification for the Terata and Hemiterata.*
5. STAUFFER, N. P. *Common Colds.*
6. GWATHMEY, J. T. *The Technic of Oil-Ether Colonic Anesthesia.*
7. LEVIN, H. L. *Organic and Psychogenic Delirium.*
8. *AUSTIN, F. D. *The Dose of Hexamethylenamine.*
9. KAEMPFER, L. G. *Salvarsan in Rhinoscleroma.*
10. HALSTEAD, W. T. *Significance of the Thymus Gland in Graves' Disease.*

8. Austin discusses the pharmacological action of hexamethylenamine and describes chemical tests for free formaldehyde in the fluids of the body. He says it is the duty of every physician who gives the drug to make one of these tests. The antiseptic value of hexamethylenamine in the alkaline fluids of the body is nil, for the conversion of this substance into formaldehyde will not occur in an alkaline medium. The ordinary dose of 5 to 7½ grains three times a day is not sufficient to be of any antiseptic value, even in acid urine. Ten to forty grains every four hours are necessary to insure germicidal action of the formaldehyde in solution. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MARCH 28, 1914.

1. SUTTON, R. L. *The Histogenesis of Multiple Basocellular Carcinoma.*
2. CARMAN, R. D. *Radiologic Signs of Duodenal Ulcer, with Special Reference to Gastric Hyperperistalsis.*
3. *MCGUIGAN, H. *Formaldehyde.*
4. *NELSON, K., AND HAINES, E. F. *Observations of the Results of Nine Months' Experience with Neosalvarsan at the United States Military Prison Hospital, Fort Leavenworth, Kan.*
5. KRUMBHAAR, E. B. *Hemolysis Due to Intravenous Injection of Distilled Water.*
6. *LINDEMAN, E. *Blood Transfusion. Report of One Hundred and Thirty-Five Transfusions by the Syringe-Cannula System.*
7. *RAULSTON, B. D., AND WOODYATT, R. T. *Blood Transfusion in Diabetes Mellitus.*
8. REED, C. A. L. *Fixation of the Ptosic Stomach and Colon by Retroperitoneal Implantation.*
9. HALL, J. N. *Why Prolonged Medical Treatment of Peptic Ulcer is Inadvisable.*
10. BAESLACK, F. W. *A Sero-Enzyme Diagnosis of Syphilis.*
11. KNOTT, V. B. *The Removal of the Appendix in All Cases of Appendicitis with Localized Abscess.*
12. DAVIES, B. C. *A Clinical Study of Asthma.*
13. FRIEDLANDER, A., AND WAGNER, E. A. *Diagnosis of Whooping-Cough by the Complement-Deviation Test. Preliminary Note.*
14. BROOKE, R. *The General Action of Quinine in the Treatment of Amebic Dysentery.*
15. BESLEY, F. A. *Pseudopancreatic Cysts, with a Report of Four Cases.*
16. DEAVOR, T. L. *Chronic Retention of the Urine. Twenty-eight Years of Catheterization.*
17. GLAZE, A. L. *Syphilitic Sore Throat Diagnosed as Diphtheria. Subsequent Eruption Confused with Supposed Antitoxic Erythema.*
18. HOWELL, W. B. *Death During Ether Anesthesia —Status Lymphaticus.*
19. CREASY, R. C. *Ankylosis of the Mandible.*

3. This author publishes a very thorough paper on formaldehyde. He finds that the drug has no field of usefulness in medicine other than for local use.

4. The authors found that five injections of neosalvarsan combined with intensive mercurial treatment have failed to show as good curative results, as shown by the serum reactions, as did one dose of salvarsan. In order to "cure" 70 or 80% of cases it would be necessary to use four or five times as much neosalvarsan as salvarsan.

6. Lindeman's article is of value and practical interest. The simplicity of his technic appeals. His analysis of results is valuable.

7. The authors transfused 500 c.c. of peripheral blood from a healthy male donor into a brother suffering from severe diabetes mellitus and obtained a marked rise in the output of sugar, ammonium and acetone bodies and glucose. They conclude that such transfusion is contraindicated in severe diabetes mellitus. [E. H. R.]

THE ARCHIVES OF INTERNAL MEDICINE.

FEBRUARY, 1914.

1. *STEWART, G. N. *Studies on the Circulation in Man. XI. The Blood-Flow in the Hands and Feet in Certain Diseased Conditions of the Vessels or of Their Venous Mechanism.*
2. MACCARTY, W. C., AND BRODERS, A. C. *Chronic Gastric Ulcer and Its Relation to Gastric Carcinoma. Review of 684 Specimens.*
3. *FOLIN, O., DENIS, W., AND SEYMOUR, M. *The Non-Protein Nitrogenous Constituents of the Blood in Chronic Vascular Nephritis (Arteriosclerosis) as Influenced by the Level of Protein Metabolism.*
4. *WILBUR, R. L., AND ADDIS, T. *Urobilin,—Its Clinical Significance.*
5. *NEWBURGH, L. H., AND LAWRENCE, C. H. *The Effect of Heat on Blood-Pressure.*
6. ROBINSON, G. C. *Paroxysmal Auricular Fibrillation.*
7. LONG, J. H., AND MUHLEMAN, G. W. *The Neutral Action of Certain Digestive Ferments.*

1. Stewart reports on a study of the blood flow in the hands and feet in arteriosclerosis, aortic aneurysm, Raynaud's disease, obliterative arteritis, gangrene, and angio-neurotic edema. He found that in cases with marked arteriosclerosis the blood flow in the hands was smaller and the contralateral vasomotor reflexes less pronounced than normal. In thoracic aneurysm the flow in the hands may be normal. When it is subnormal there is no evidence that the existence of the aneurysm as such has any influence in diminishing the flow; the diminution is due to coexisting pathologic conditions, *e.g.*, myocardial changes, valvular lesions. A great difference in the form of the pulse wave in the two radials associated with thoracic aneurysm does not necessarily indicate a difference in flow through the hands. In the cases of Raynaud's disease the hand flows were subnormal, even in the absence of an actual attack, and very much below the normal in the more advanced cases. An abnormally great contralateral reflex vasoconstriction to cold seems to characterize the earlier stages of this disease.

3. Folin, Denis and Seymour studied the non-protein nitrogenous constituents of the blood in arteriosclerotic nephritis and the effect upon them of variations in protein ingestion. Their results indicate that the direct determination of non-protein nitrogen and urea in the blood is a more reliable guide to the protein tolerance of patients than can be obtained from the phenol sulphonephthalein test or any other direct test of renal efficiency.

4. Wilbur and Addis made an exhaustive clinical and experimental study of urobilin, and their conclusions upon its clinical significance are valuable. The intestinal formation of urobilin from the decomposition of bile present within the bowel is the usual mode of origin, but there is evidence that a diseased liver may originate urobilin either directly as a product of its cells or indirectly from decomposition of bilirubin within the bile passages. Under these circumstances the accumulated urobilin in the liver is absorbed by the blood stream and excreted in the urine. There is a close association between increase of urobilin in the urine and disturbance of liver function. An increased quantity of urobilin in the stools indicates increased blood destruction. The interpretation of urobilin findings in the urine is somewhat problematical, while the determination of an increased intestinal excretion rests on a much firmer basis. Urobilinuria occurs almost constantly in the hypertrophic stage of hepatic cirrhosis. The degree of urobilinuria is a good index of the damage done to the liver parenchyma by chronic passive congestion, a marked degree of it being of ominous prognostic significance in cardiac decompensation. Urobilinuria is absent in obstructive jaundice, present in hematogenous jaundice. In obscure febrile conditions it is of diagnostic importance. The persistence of urobilinuria after malarial attacks in the absence of fever and of urobolin in the stools indicates cirrhosis, abscess or some other complication. In pernicious anemia total urobilin elimination is very large, in secondary anemia comparatively small. In pneumonia early and marked urobilinuria is a bad prognostic sign. Severe nephritis, even in the presence of increased production of urobilin, may prevent definite urobilinuria, so that large amounts of urobilin in the urine may be taken as indirect evidence of a certain degree of efficiency in the renal epithelium.

5. Newburgh and Lawrence studied the effect of heat on blood pressure in a series of experiments on cats and rabbits. They have found that degrees of hyperthermia not greater than those encountered in infections are sufficient to cause marked hypotension. The increased body temperature of infection is a potent factor in the production of the lowered blood-pressure which occurs in such conditions, and may be the entire cause of it. [L. D. C.]

JOURNAL OF EXPERIMENTAL MEDICINE.

MARCH 1, 1914.

1. *CLARK, P. F., FRASER, F. R., AND AMOSS, H. L. *The Relation to the Blood of the Virus of Epidemic Poliomyelitis.*
2. LECOUNT, E. R., AND LONG, E. R. *The Relation between the Fat Content of the Bile and Fatty Changes in the Liver.*
3. JOBLING, J. W., AND PETERSEN, W. *Soaps as Ferment-Inhibiting Agents. Studies on Ferment Action.*
4. JOBLING, J. W., AND PETERSEN, W. *Ferment-Inhibiting Substances in Tubercle Bacilli. Studies on Ferment Action.*
5. KARSNER, H. T., AND DENIS, W. *A Further Study of Nitrogen Retention in the Blood in Experimental Acute Nephritis.*
6. KARSNER, H. T., AND DENIS, W. *A Note on Nitrogen Retention Following Repeated Injections of Nephrotoxic Agents.*
7. LAMBERT, R. A. *A Note on the Specificity of Cytotoxins.*
8. *EVANS, H. M., BOWMAN, F. B., AND WINTERNITZ, M. C. *An Experimental Study of the Histogenesis of the Miliary Tubercle in Vitally Stained Rabbits.*
9. MEDIGRECEANU, F. *The Indophenoloxydase Content of Tissues from Rabbits Infected with Pneumococcus.*
10. MEDIGRECEANU, F. *A Comparative Study of the Rate of Proteolysis of Tissues Obtained from Rabbits Infected with Pneumococci and of Tissues from Normal Rabbits.*

1. Clark, Fraser and Amoss were unable to infect monkeys with specimens of human blood taken during the paralytic stage of poliomyelitis. In only one instance out of ten tests were they able to produce infection with a specimen of blood from experimental poliomyelitis in monkeys. In general their experiments showed that infection is accomplished far less readily through the circulation than by means of the more direct lymphatic and nervous channels of communication with the central nervous system.

8. Evans, Bowman and Winternitz carefully studied the histogenesis of an experimental miliary tubercle, developing inside the liver lobules in animals that have been vitally stained and inoculated with bovine tubercle bacilli. It is of considerable interest that the effects of the dye and of the tubercle bacilli are somewhat similar. They were able to show that the mononuclear cells which enter most actively into the reaction induced by the tubercle bacilli are endothelial and not hematogenous in origin. [R. I. L.]

THE LANCET.

MARCH 7, 1914.

1. *GOODHART, J. F. *A Lecture on Glycosuria and the Albuminuria of Adolescents.*
2. *GILFORD, H. *Hunterian Lectures on Infantilism. Lecture II.*
3. *SHERMAN, T. *The Morbid Anatomy of Tuberculosis in Man.*
4. MAY, O. *The Significance of Diabetic Family History in Life Assurance.*
5. FARRANT, R. *The Pathological Changes of the Thyroid in Disease.*
6. HUGHES, B. *Case of Acute Suppurative Appendicitis Complicated by Gangrene of the Ileum.*

1. Goodhart discusses glycosuria, in contradistinction from diabetes and its relation to retinal changes occurring in the course of arteriosclerosis and renal disorders—known as "gouty glycosuria." The latter part of his paper he devotes to albuminuria of adolescence its causation and diagnosis.

2. In his second lecture, Gilford continues his discussion of infantilism as associated with anomalies of sex organs, thyroid insufficiency, and abnormalities of the pituitary gland. He goes into the historical side of the question and gives much interesting information on the general subject.

3. Sherman presents conclusions from his detailed study of the morbid anatomy of tuberculosis in man as follows: Hypersensitiveness due to a primary infection is probably of great importance in relation to reinfection, not necessarily from a primary focus but from a new infection from without. The majority of cases of pulmonary tuberculosis are due to aerogenic infection, although retrograde infections do occur. There is no evidence in favor of a spread by direct continuity from the deep cervical glands to the lungs. In children manifest pulmonary tuberculosis is often a sequel of bronchial gland tuberculosis. In Scotland bovine infections in childhood are commoner than in most other parts of the world. There is much of interest and value in this article. [J. B. H.]

MARCH 14, 1914.

1. SHORT, A. R. *Hunterian Lecture on Changes in the Blood in the Causation of Surgical Shock.*
2. BASSETT-SMITH, P. W. *The Agglutination of M. Melitensis by Normal Cows' Milk.*
3. MOYNIHAN, B. G. A., AND TATLOW, E. T. *A Case of Transgastric Excision of a Gastro-jejunal Ulcer.*
4. BROWNING, C. H. *The Technic of the Wassermann Reaction with Special Reference to the Use of Antigens Containing Cholesterin.*
5. ROBINSON, H. B. *Popliteal Aneurysm.*
6. HACKENBRUCH, PROF. *The "Ambulant" Treatment of Fractures with Plaster-of-Paris and Fracture Clamps.*
7. GRAY, H. T. *Recurrent Intussusception; with Suggestions as to the Etiology.*

BRITISH MEDICAL JOURNAL.

MARCH 7, 1914.

1. *OSLER, W. *The Visceral Lesions of Purpura and Allied Conditions.*
2. BRADBURN, T. S. *Oral Sepsis Simulating Henoch's Purpura.*
3. STEWART, P. *Further Note upon a Case of Hysterical Monoplegia Following Electric Shock.*
4. *SHUFFLEBOTHAM, F. *The Milroy Lectures on the Hygienic Aspect of the Coal Mining Industry in the United Kingdom. Lecture II.*

1. Osler interestingly describes certain manifestations of purpura, other than skin lesions, which occur in the course of the disease. These are of two types, mechanical, due to the presence of an exudate in the walls of the stomach, intestines, or elsewhere, and second, inflammatory, as nephritis, pleurisy, endocarditis, etc. He presents various interesting cases showing cerebral manifestations, ocular lesions, gastro-intestinal symptoms, angio-neurotic edema, epistaxis and renal complications, cardiac and respiratory lesions.

4. Shufflebotham, in his second lecture on the hygiene of coal mining, takes up the causes of explosions and their prevention by watering of coal dust, etc. He considers the various poisonous gases, such as black damp, fire damp, after-damp, etc., the treatment of cases of asphyxiation from such causes, and last he refers to rare causes of poisoning, such as sulphuretted hydrogen, smoke, nitrous fumes, et al.

[J. B. H.]

MARCH 14, 1914.

1. *HOLMES, G. *The Diagnosis of Tabes Dorsalis.*
2. *CAMPBELL, H. *The Treatment of Syphilis of the Nervous System by Intrathecal Injections.*
3. *MCILROY, A. L. *Some Problems in the Treatment of Venereal Diseases.*
4. *ABRAHAM, J. J. *Arseno-therapy in Syphilis with More Particular Reference to "Gabyl."*
5. BAYLY, H. W. *The Diagnosis and Treatment of Chronic Gonorrhea and Its Local Complications.*
6. BARNES, A. E. *A Case of Otitic Meningitis and Cerebellar Abscess with Recovery.*
7. *SHUFFLEBOTHAM, F. *The Milroy Lectures on the Hygienic Aspect of the Coal-Mining Industry in the United Kingdom. Lecture III.*

1. This is a practical article on the diagnosis of tabes, but presents nothing new.

2. Campbell believes that the injection of salvarsanized serum into the spinal cord is the only effective way of treating certain forms of syphilis of the central nervous system. It should be begun as early as possible. It acts by destroying the spirochaetes within the central nervous system and the cerebrospinal fluid.

3. Among the preventive methods in handling the venereal problem, McIlroy recommends that all measures to prevent compulsory prostitution be encouraged; that the mentally deficient be segregated; that the public be educated as to the seriousness and size of the problem and that prompt notification of all abortions and premature births be made. In curative methods he urges that everything be done to keep patients under observation as long as possible and that this be only in the hands of the medical profession. He does not believe in special hospitals for such cases.

4. Abraham is of the opinion that mercury is regaining its old position as the main standby in the treatment of syphilis; that the real progress of arseno therapy is not in effecting a complete cure but in bringing about a rapid healing in the early, highly contagious stages of the disease.

7. In the third Milroy Lecture, Shufflebotham considers dust and its effects, particularly as regards tuberculosis and fibrosis. He discusses the symptoms and signs of the fibroid lung and then takes up the influence of temperature on the health of miners.

[J. B. H.]

IL POLICLINICO.

MEDICAL SECTION.

OCTOBER, 1913.

1. MASSALONGO, R., AND GASPERINI, N. *Pneumonic Hypertrophic Osteoarthropathy.*
2. IZAR, G. *A Case of Lung Abscess Cured by Means of Artificial Pneumothorax.*
3. PEZZI, P. *Considerations upon Two Cases of Complete Auriculo-Ventricular Dissociation.*
4. PONTANO, T. *Reports Concerning Serum Disease and Anaphylactic Phenomena.*

SURGICAL SECTION.

1. SCALONE, I. *Strangulated Crural Hernia of the Uterine Tube, with Syndrome of Paralytic Ileus.*
2. LEOTTA, N. *Wounds of the Heart.* (*Conclusion.*)
3. DIALTI, G. *Points of Technic in Suprapubic Prostatectomy.*
4. STEFANO, P. A. *Some Cases of Ludwig's Angina.*
5. CASALI, R. *Contribution to the Topography of Sinus Terminalis of the Spinal Dura Mater with Surgical Considerations.*
6. CHIASSERINI, A. *Vasal Plastics with Free Flaps of Aponeurosis.*

NOVEMBER, 1913.

MEDICAL SECTION.

1. *BOSISIO, R. *Experimental Studies on Antityphoid Vaccination in Man.*
2. MORESCHI, C. *Chronic Lymphatic Leukemia and Intercurrent Typhoid Infection.*
3. SISTO, P. *Studies on Progressive Pernicious Anemia.*

1. Bosisio reviews the experimental work of many investigators on typhoid vaccination and describes some experiments of his own. He is satisfied that Loeffler's method of preparing vaccine is the best. Such vaccine remains potent for a long time and a single minute dose of it given intravenously assures a high grade of immunity of long duration, appearing within eight days of injection. [L. D. C.]

SURGICAL SECTION.

1. *GIORDANO, G., AND STROPENI, L. *Experimental Contribution to the Surgery of the Diaphragm.*
2. SERAFINI, G. *Total Spino-Facial Anastomosis for Traumatic Lesion of the Facial.*

3. NASSETTI, F. *The Operability and Routes of Approach to Tumors of the Pineal Gland.*
4. PIAZZA, E. L. *Contribution to the Knowledge of the Congenital Median Formations of the Neck.*
5. CHIASSERINI, A. *Experimental Inflammatory Lesions of the Hypophysis and of the Hypophysary Region.*
6. PINARDI, G. *Experimental Researches on Transplantations of the Urethra.*

1. The authors report ten animal experiments in diaphragmatic surgery by the endothoracic route, especially the replacement of large diaphragmatic flaps by fascia lata. [R. M. G.]

DECEMBER, 1913.

MEDICAL SECTION.

1. SISTO, P. *Studies on Progressive Pernicious Anemia.*
2. BRUGNATELLI, A. *A Case of Bilious Peritonitis with Effusion of Bile in the Peritoneum without Perforation of the Biliary Tract.*
3. SFORZA, C., AND COSCO, G. *The Spread of Human Tuberculosis to the Muscles and the Bone Marrow.*
4. *ANSELINI, A. *A Clinical Contribution to the Diagnostic Value of Antistaphylolysin.*

4. Anselini reports results of a study of the blood serum in cases of staphylococcus infection as compared with that of normal individuals and of persons suffering from other diseases. He finds that a certain amount of antistaphylolysin is present in normal serum and a much larger amount in patients with staphylococcus infections. The serum of persons with staphylococcaemia, containing a considerable quantity of antistaphylolysin, does not show complement deviation with aqueous extracts of staphylococci, antiformin extracts being used as antigen. [L. D. C.]

SURGICAL SECTION.

1. PIGNATTI, A. *Grafts on the Vas Deferens.* (*To be continued.*)
2. BARTOLOTTA, E. *Operative and Histologic Contribution to the Study of Congenital and Elephantiasic Fibromata of the Lower Eyelid.*
3. FORONI, C. *Sclerectomy ab Externo.*

THE SEI-I-KWAI MEDICAL JOURNAL.

DECEMBER, 1913.

1. HIGUCHI, S. *A Case of Extra-Uterine Gestation Occurring Twice in One Woman.*
2. HIGUCHI, S. *Report on Fifty Cases of Extra-Uterine Pregnancy.*
3. KAMADA. *On a Case of Carcinoma Uteri Complicating Pregnancy.*
4. OHKINNA. *On a Case of Primary Carcinoma of Vagina.*
5. IWAHARA. *On a Treatment of Vomitus Matutinus.*
6. TSURUTO. *On Two Cases of Angina Pectoralis Occurring in the Course of Gastro-Intestinal Disorder.*

Obituary.

JOSEPH D. BRYANT, M.D.

DR. JOSEPH D. BRYANT of New York, professor of surgery in the University and Bellevue Hospital Medical College, died from diabetes in St. Vincent's Hospital on April 7. Dr. Bryant was born at East Troy, Wis., on March 12, 1845, and was graduated from Bellevue Hospital Medical College in 1868. He then served as interne at Bellevue. During almost his entire professional career he was connected in some capacity with the hospital, and for many years had been attending surgeon. In 1898 he was appointed professor of surgery in the Bellevue Medical School, and when the consolidation of this with the medical department of New York University was effected he was made professor of surgery in the new medical college. He had been visiting surgeon to St. Vincent's Hospital for twenty-seven years, and at the time of his death was also consulting surgeon to the Gouverneur, Woman's, and Manhattan State Hospitals, the Hospital for Ruptured and Crippled, and St. Joseph's Hospital, Yonkers. Dr. Bryant was the physician and confidential friend of Mr. Cleveland, both when he was governor and president, and by him was appointed state commissioner of health and surgeon-general of the state national guard. He was greatly honored by the profession, serving at various times as president of the New York State Medical Association, the Medical Society of the state of New York, the New York Academy of Medicine, and the American Medical Association. He was the author of an elaborate work on operative surgery, and collaborated with Dr. Albert H. Buck in the chief editorship of the "American System of Surgery."

Miscellany.

ANOTHER METHOD OF PROVIDING DENTAL NURSES.

IN the issues of the JOURNAL for Jan. 1 and 22 (Vol. clxx, pp. 24 and 139) we commented editorially on the proposed measure, now pending before the General Court, providing various changes in the methods of registration of dentists in Massachusetts. At a recent meeting of the Massachusetts Society for the Advancement of Mouth Hygiene, this measure was strongly disapproved. The society favors the accomplishment of the same end by adopting the following amendment to the present law regulating and governing the practise of dentistry in the state:

"Nor shall the law prevent a person, male or female, from cleaning the teeth of and teaching mouth hygiene to the children in public or private schools or institutions approved therefor by the board of health of the city or town in which such school or institution is located, which approval upon written application by the authorities of such school or institution said board of health in its discretion is hereby authorized to give, provided that such person is 20 years of age, of good moral character, has duly qualified

by passing a satisfactory examination in the subjects of mouth hygiene, sterilization, transmission of infectious and contagious diseases and the cleaning of teeth, and holds a certificate to that effect from the board of registration in dentistry, and upon the payment by each applicant of a fee of $5, which shall not be returned. Such board is hereby authorized to make such examination and issue such certificate."

The annual report of the Massachusetts State Board of Registration in Dentistry, recently filed, also opposes the establishment of dental nurses on the ground that in private offices they would be likely to practise other dental procedures than teeth-cleaning.

"Conviction for practicing dentistry by these certified 'dental nurses' would well nigh be impossible," says the report. "Obviously, the objection must be apparent. The passing of such a bill would be the opening of the door to an indiscriminate lot of unqualified adventurers to the general practise of dentistry and a virtual repeal of the present law. Therefore, the work of these qualified 'nurses' should be strictly limited to public and private hospitals, schools and charitable institutions.

Correspondence.

THE FRIEDMANN SERUM AND THE SOCIETY OF GERMAN SANATORIUM PHYSICIANS.

NEW YORK, April 7, 1914.

Mr. Editor: A sensational notice appeared at the beginning of last month in some of the leading New York American and German-American newspapers in which it was stated that on the occasion of the annual meeting of the Association of German Sanatorium Physicians on Febrbuary 28, one hundred and twenty of these physicians had carefully investigated the results of Friedmann's work. It was reported that 40,000 cases had been treated with Friedmann's serum and that the successes had been simply phenomenal. It was furthermore stated that Dr. Friedrich Franz Friedmann had been the guest of honor at a banquet given by the sanatorium physicians and that he had been effusively thanked by Privy-Councillor Professor Dr. Pannwitz for his work, in the name of the sanatorium physicians present. Finally, it was said in the newspaper report that Dr. Friedmann had made the statement to an American press representative that Professor Ehrlich had expressed the opinion that the Friedmann serum was absolutely harmless.

In a communication received by the undersigned, bearing the signatures of the President, Dr. O. Pischinger, the Vice-President, Dr. J. Ritter, and the Secretary, Dr. Schellenberg, of the Association of Sanatorium Physicians of Germany, Austria and Switzerland, he was requested to enlighten the American medical profession concerning the incident connected with their visit to the Friedmann Institute in Berlin, and to give the facts the widest possible publicity at least among medical men.

First of all, the officers of the association expressed their astonishment that the visit of the sanatorium physicians to the Friedmann Institute should have been used as a means of advertising Friedmann and his remedy abroad. Because of the report of cures which constantly crept into the German medical and lay press and the demands for the remedy from many sanatorium patients, it was natural that the sanatorium physicians while visiting Berlin should wish to see for themselves what was going on in the Friedmann Institute. Thus they asked Friedmann to show them his cases and give them a talk on the indication for his remedy. About 60 of the 125 members of the association visited the Friedmann Institute on the 26th and 27th of February, 1914. They distinctly stated that their visit was in no way to be considered a pilgrimage to pay homage to Friedmann for his discovery but rather an investigation to find out just how much truth there was in his claims. Many had already tried the remedy and had been disappointed, others were prejudiced, and it is for this reason that they wanted to examine critically into Friedmann's claims. It is absolutely untrue that a banquet was given to Dr. Friedmann. After the conclusion of the visit there was a confidential conference, without Dr. Friedmann, at which the members concluded to discuss the theme again next fall and in the meantime collect as much material as possible.

That the undersigned may not be accused of prejudice or misinterpretation, I wish to quote in German the most essential statements which were made as the result of the visit of the association to the Friedmann Institute:

"Wir waren uns darüber einig, dass die uns von Friedmann gezeigten Fälle klinisch recht schlecht beobachtet waren und im Allgemeinen keineswegs als 'Erfolge' angesehen werden konnten. Wir haben uns gewundert, dass uns keine ordnungsmässig geführte Kurve gezeigt wurde. Die Röntgenplatten, die man uns zum Beweis zeigte, bewiesen tatsächlich garnichts. Wir geben zu, dass einzelne Fälle allerdings einen gewissen Eindruck auf uns gemacht haben, *wobei wir uns aber auch darüber klar waren, dass solche Fälle auch ohne jede Behandlung und bei jeder Behandlung vorkommen können*, und dass die Zahl dieser Fälle verhältnissmässig *viel* zu klein war, um ein günstiges Urteil über das Mittel abgeben zu können."

(We were of the unanimous opinion that the cases shown by Friedmann had been clinically very badly observed, and as a whole could not be considered as successes or cures. We were astonished that no carefully recorded temperature and weight curves were shown. The x-ray plates which were shown to us as evidence of cures did not actually prove anything whatsoever. We will admit that some cases indeed made an impression upon us, but here we must also remember that such cases occur without any treatment or with any kind of treatment, and that the number of them were altogether too few to permit a favorable judgment of the value of the remedy.)

I have since received a letter from Geheimrat Professor Dr. Pannwitz in which he substantiates what has been said in the official communication from Drs. Pischinger, Ritter and Schellenberg. He particularly expresses his indignation at the use of his name in connection with a banquet which never took place. He declared the whole thing to be a newspaper invention.

Prof. Dr. L. Brauer, Director of the Eppendorf Krankenhaus of Hamburg, who had also heard the American version of the sanatorium physicians' visit to the Friedmann Institute in Berlin, wrote me a letter full of indignation and said at the same time that "he had tried Friedmann's remedy at the Eppendorfer Krankenhaus and the results had been unfavorable." He has reported these unfavorable results recently at the Balneological Congress and the Hamburger Aerzte Verein, and intends to publish more on the subject at an early date. He has since sent me the advance sheets of his forthcoming communication regarding Friedmann wherein he says: "The pulmonary cases tested in the Eppendorfer and Salemburg hospitals with Friedmann's method did not improve, but some of them without a shadow of doubt were rendered worse by the treatment. Five cases of bone and joint tuberculosis in children treated with the Friedmann serum by Dr. Trepler in the Salemburg institution were not influenced at all by the treatment and in

one case, although the movement of the afflicted joint increased, the general condition of the lesions was rendered worse."

In paying a gratifying tribute to the earnest and unbiased work done with Friedmann's serum by American investigators, which likewise gave unfavorable results, Professor Brauer advised me, in the interest of the German medical profession, and especially in the interest of the unfortunate patients who naturally are inclined to accept such advertised endorsement as genuine, that it would be most desirable for the present status of the Friedmann remedy in Germany to be made clear to the American medical profession and the laity.

I am sure our German colleagues in general and particularly the German sanatorium physicians, Professors Pannwitz and Brauer, will be greatly indebted to you, Mr. Editor, if you will give the foregoing a space in your esteemed journal and thus make clear the real status of Friedmann's remedy in Germany.

Respectfully yours,

S. A. KNOPF, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING APRIL 4, 1914.

March 27, Surgeon G. F. Freeman, from *North Carolina* to the *Nebraska*.

P. A. Surgeon E. H. Old, detached, *Nebraska* to wait orders.

March 28, Medical Director G. T. Smith, detached, Navy Yard, Washington, D. C., to wait orders.

Surgeon C. E. Riggs, detached, *Louisiana* to wait orders.

Surgeon F. C. Cook, detached, Naval Hospital, Puget Sound, Washington, to *Louisiana*.

April 1, Asst. Surgeon J. T. Boone, commissioned asst. surgeon, M.R.C., March 17, 1914.

April 2, P. A. Surgeon D. C. Walton, detached, Naval Hospital, Brooklyn, N. Y., and ordered to Naval Academy, Annapolis, Md.

Asst. Surgeon C. I. Wood, M.R.C., to New York Hospital.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

TREASURY DEPARTMENT.

UNITED STATES PUBLIC HEALTH SERVICE.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, SE., Washington, D. C., and at the Marine Hospitals of Boston, Mass., Stapleton, N. Y., Chicago, Ill.; St. Louis, Mo.; New Orleans, La.; and San Francisco, Cal., on Monday, April 27, 1914 at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

For investigation to appear before the board of examiners, address "Surgeon General Public Health Service, Washington, D. C."

APPOINTMENTS.

DR. L. D. BRISTOL, of Syracuse Medical School, has recently been appointed director of the public health laboratory of the University of North Dakota.

RECENT DEATHS.

DR. JOSEPH B. BRYANT, of New York, died in that city on April 7, at the age of 69 years.

DR. G. P. DAVIS, who died on April 1, at Hartford, Conn., was born in 1845. He graduated from Yale in 1865, and in 1869 received the degree of M.D. from the New York College of Physicians and Surgeons. He was a former president of the Connecticut State Medical Society.

DR. PHILIP MANSFIELD FITZSIMMONS who died on April 4 at Cambridge, Mass., was born in Ireland in 1863. He migrated to the United States in 1889, and in 1892 received the degree of M.D. from the University of Vermont. He settled in the practise of his profession at Cambridge, where he served as medical inspector of schools. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society, and a member of the Cambridge Medical Improvement Society. He is survived by one daughter and one son.

DR. F. J. S. GORGAS, formerly dean of the dental department of the University of Maryland, died at Baltimore on April 8, at the age of 80 years.

DR. ALLAN FOSTER BARNES, of Cambridge, a Fellow of The Massachusetts Medical Society, died at the Massachusetts General Hospital, Boston, April 12, 1914, aged 38 years.

BOOKS AND PAMPHLETS RECEIVED.

Diseases of Women. By Charles A. L. Reed. D. Appleton and Company. 1913.

Preventable Blindness—A Challenge to the Professions. By Henry Copley Greene, B.A. Reprint.

Essentials of Prescription Writing. By Cary Eggleston. W. B. Saunders Company. 1913.

Materia Medica, Pharmacology, Therapeutics, Prescription Writing. By Walter A. Bastedo, Ph.G., M.D. W. B. Saunders Company. 1913.

The Surgical Clinics of John B. Murphy, M.D. October, 1913. W. B. Saunders Company. 1913.

A Practical Treatise on Medical Diagnosis. By John H. Musser, M.D. Sixth edition. Lea and Febiger. 1913.

Public Health Report, Vol. 28, No. 45, Nov. 7, 1913. Containing Information of the Current Prevalence of Disease, the Occurrence of Epidemics, Sanitary Legislation and Related Subjects.

Public Health Reports. Index. Vol. 28, Part I, Nos. 1-26. January-June, 1913.

The White Linen Nurse. By Eleanor Hallowell Abbott. The Century Company, New York. 1913.

The Problem. By Charles Percy, M.D. The Shakespeare Press. New York, 1913.

Cancer of the Breast. By C. B. Lockwood. Oxford Medical Publications. 1913.

Social Work in Hospitals. By Ida M. Cannon. Survey Associates, Russell Sage Foundation.

First Book of Health. By Carl Hartman and Lewis Bradley Bibb. World Book Company. 1913.

The Human Body and Its Enemies. By Carl Hartman and Lewis Bradley Bibb. World Book Company. 1913.

Early Pulmonary Tuberculosis. By John B. Hawes, 2nd, M.D. William Wood and Company. 1913.

Uterine Carcinoma. By A. F. A. King, LL.D. Reprint.

A Manual of Operative Surgery with Surgical Anatomy and Surface Markings. By Duncan G. L. Fitzwilliams, M.D. William Wood and Company. 1913.

Epidemic Infantile Paralysis. By Professor Paul H. Romer. William Wood and Company. 1913.

A Text-book of Gonorrhea. By Dr. Georges Luys. William Wood and Company. 1913.

On the Volume Changes of the Arm During Muscular Exercise. By Esther V. Starkweather. Reprint.

Original Articles.

THE TREATMENT OF CASES OF MENTAL DISORDER IN GENERAL HOSPITALS.*

By Philip Coombs Knapp, A.M., M.D., Boston,

Physician for Diseases of the Nervous System, Boston City Hospital.

In the report of the Boston City Hospital for the year ending January 31, 1913, the trustees, speaking of the establishment of the house service for nervous diseases, made the following statement:—

> "With the passage of time the advantages of this plan become more evident. Perhaps the most marked gain for the hospital is in the opportunity this service gives for the observation of patients with psychopathies, or confusional or hallucinatory states. In this way there is given the opportunity to distinguish the various forms of cases, particularly to separate the cases due to some toxaemia or other temporary causes from the more chronic cases, thus preventing the need of committing many of these patients to institutions for the insane, and thus saving them from the stigma of having been insane, however unreasonable this stigma may seen to physicians, and also avoiding considerable expense for the community for the transfer to other institutions of these transitory cases."

In the many discussions that have been held as to the disposition to be made of the so-called "acute and borderland cases of mental disease," I have at various times contended that such cases could very well be received and temporarily cared for in our general hospitals,—a contention which the hospital authorities have always strenuously opposed. It was therefore with considerable gratification as well as surprise that I read the words just quoted, for they showed that the experience of the last four years in the treatment of such cases in the neurological service has demonstrated not only that the admission of such cases is possible, but even advantageous.

The mentally disturbed patient is, of course, not looked upon with favour in a general hospital. He may be noisy, violent or dangerous; patients and nurses fear him; he may have to be fed or be filthy in his habits; his language and conduct may be offensive; he may even kick off the bed-clothes or wander about in his night shirt. Consequently a matron, who does not want the bed-clothes thrown off when the thermometer reaches 104°, or who, like the matron described by Dr. Mary Neff*, "wants the patients to sit all in a row," because they "look neater that way," looks at him askance. His departure, whether to the insane hospital or the morgue, is hailed with relief. Nevertheless every hospital of any size must inevitably have to deal with disturbed or violent cases, if it receives accident cases, surgical cases, acute infectious diseases, apoplexies, renal diseases, or, I might almost say, any patient at all. If the hospital has a special ward, like the psychiatric ward at Bellevue, the problem is easier, but with open wards the difficulties are obvious and have often been regarded as insuperable.

It therefore seems desirable, especially in the light of the recent comments of the trustees of the hospital, to review my own personal experience in the last four years in dealing with patients who have manifested some mental disturbance during their stay in the hospital. I will speak only of the cases admitted to my own service during one half of each year, although it is safe to assume that conditions do not differ materially during Dr. Thomas's service in the other half of the year. It is fitting here to recognize Dr. Thomas's complete cooperation in the work of the service in caring for these patients and the absolute support which Dr. McCollom has given us, in spite of certain anxious misgivings, in our efforts to carry out our own ideas in the face of considerable opposition and interference on the part of others.

A few words of explanation may be desirable in regard to the Neurological service. After a struggle of twenty-three years, following the abolition of the service in 1886, it was re-established in July, 1909. Twenty beds were allotted to the service,—an inadequate number, for the service has contained at times thirty or forty patients. There is no special ward, but patients are distributed in several wards. Excited patients are put in an open ward of eight beds, or in double rooms opening on a corridor leading directly from this ward. The doors are not locked and access is free. About four hundred patients are admitted annually to the wards, chiefly adults. In addition the visiting physicians have charge of the out-patient department, which receives seven or eight hundred new cases a year. Cases are often referred from the out-patient department to the wards, but the great majority of cases admitted to the hospital come from outside and are never seen in the out-patient department. No special effort has been made to collect mental cases and recommend them for admission; they have come in simply in the course of the ordinary hospital routine. After some months the trustees passed

* Read at a meeting of the Boston Society of Psychiatry and Neurology, December 18, 1913, and at a meeting of the New York Psychiatrical Society, January 7, 1914.

* Journal of the American Medical Association, vol. lxi, p. 660, August 23, 1913.

a vote that all cases in the hospital in which the question of commitment was raised should be referred to the neurological department which should provide for such commitment if advisable. Such cases are usually, although not always, transferred to the Neurological service.

In the last four years there have been admitted to the service during the months when I was on duty 785 patients. Of these 49 were not neurological cases. The remainder may be classified as follows:—

Diseases of peripheral nerves	62
Diseases of spinal cord	78
Diseases of brain	279
Neuroses and psychoneuroses	157
Mental diseases	74
Alcoholism	93
Cases classed under two headings	7

This classification is the conventional one, classifying hysteria, epilepsy, psychasthenia, etc., among the neuroses, and including paresis among the mental diseases and cerebral oedema (alcoholic "wet brain") under alcoholism. The following table will show the diagnoses most frequently made.

Apoplexies (hemorrhage, embolism, thrombosis)	207
Alcoholism	93
Hysteria	52
Neuritis	40
Epilepsy	36
Tabes	35
Chorea	23
Cerebral syphilis	21
Dementia precox	20
Cerebral tumor	18
General paresis	14
Spinal tumor	11
Spinal syphilis	10

Under alcoholism I have included beginning delirium tremens, cases that never developed a true delirium, but came near it, alcoholic confusion, hallucinosis, paranoid states, pseudo-paresis and "wet brains." In addition most of the cases of neuritis were of alcoholic origin and many of them showed the Korsakow syndrome. The 74 cases of actual mental disease were of all types, senile dementia, paresis. dementia praecox, maniacal-depressive insanity, infectious psychoses, confusional states, etc.

This classification, however, is not very illuminating. Under the hospital rules mental and alcoholic cases, which form about twenty per cent. of my cases, are not supposed to be admitted. We must also remember that many cerebral cases, not classed as mental,—apoplexy, tumor, syphilis,—may show pronounced mental symptoms, that many cases of neuritis have Korsakow's syndrome, and that hysteria, chorea, epilepsy and psychasthenia can cause considerable disturbance, so that these "mental" cases are only a part, perhaps a minority, of the cases which show mental disturbance. If the cases admitted to Dr. Thomas's service are like those admitted to mine, which seems to be the case, it is not an exaggeration to say that the service receives about one hundred patients each year who show considerable mental disturbance. I may add that I have myself committed 69 patients from the hospital in the last four years, and I think that at present about forty such cases are committed each year.

The crucial point in regard to the admission of mental cases to the wards of a general hospital is, of course, neither the number of cases nor the diagnosis, but the conduct of the individual patient. A general paralytic may be able to go about and attend to business without harm to anything or anybody except the business, or he may be the most dangerous patient in an asylum. That many of our patients have been actually insane the number of commitments shows, but many have been fairly quiet and easily controlled, just like the majority of patients in an insane hospital. I have, however, dealt with nearly every variety of patient in these last four years as far as conduct goes,—simple confusion, cases requiring forced feeding, agitated and suicidal melancholias, aggressive paranoiacs and the most violent epileptic mania. Violent mania is of course rare, whether in a general hospital or an insane asylum, yet to the minds of many of the laity, and apparently some physicians, "insanity" seems to connote violent mania, if indeed it be not identical with it. In some of the discussions on the treatment of incipient and border-land cases of mental disease, I have often wondered just what the cases were, for they were depicted as so much more violent and intractable than the incipient and border-land cases I had met, that it almost seemed as if, in comparison with them, the first Mrs. Rochester—still the type of the insane person—were a Quaker damsel.

I do not mean to imply that, previous to the reestablishment of the neurological service, there were not mental cases in the hospital. On going over the records of the old service for nervous diseases thirty years ago, I have been surprised to note the very considerable number om mental cases admitted, and I can recall many cases each year since that have come under my observation as a consultant. Many alcoholic and some mental cases may still be found in the general services, so that there have been more cases in the hospital during the last four years than my statistics would indicate. Every general hospital actually receives a considerable number of such cases, and, although the hospitals object and profess not to receive them, they will continue to have them in their wards so long as they receive patients at all.

In most hospitals, however the mentally disturbed patient, like other unacknowledged children, is not very well treated. Even if he

be not actually violent he may get out of bed or disarrange the bed-clothes, and the one idea is to keep him quiet. The result is restraint, and since drug restraint usually requires the connivance of the physician, mechanical restraint, which can be applied without a prescription, is preferred. This is often irritating and sometimes brutal. With a sheet across the body, each hand tied down to the side of the bed and each foot tied to the bottom, it is a common thing for the patient, if he be restless, to rub several square inches of skin off his wrist and ankles. The exasperating effect of such restraint is obvious, and since he can get relief in no other way, he takes it out in cursing—and small blame to him. In hospitals for the insane a list is kept of all patients put under restraint, noting the kind of restraint and the length of time it is applied. Such a list is regularly submitted to the trustees on their visits, and the trustees usually visit such patients and investigate their condition personally. What general hospital does the same?

I am not disposed to make a fetish out of "no restraint." I have seen patients in insane hospitals where I believed at times restraint was desirable. In general hospitals restraint may be even more necessary, especially in surgical cases, but it is applied much oftener than is necessary. There is much truth in the statement that violent mania is often an artefact, due to psychical sepsis, and it is a fact that much of the restraint used in general hospitals is due to an inefficient and insufficient nursing force.

It naturally follows that an effort has been made to cut down restraint, in which Dr. Thomas thoroughly cooperated. House officers and nurses were told that mechanical restraint as ordinarily applied was damnable, and some of the former apparently came to believe it. Both house officers and nurses speedily became convinced that, if they employed restraint except as a last resort in urgent cases, they would be very thoroughly damned, and no restraint has been permitted except on the express orders of the house physician. In the enforcement of such rules and in the prevention of interference by matrons and executive assistants, we have been much helped by Dr. McCollom, who has always been ready to supply special nurses when necessary. The result has been that in the neurological service little restraint has been used, usually in the form of a sheet fastened across the bed, or, very rarely, of a camisole. The brutal "spatch-cock" method of tying, already described, has proved needless. Restless patients have often done well when side pieces were put on the beds—an innovation in the hospital which we owe to Dr. McCollom, and which would undoubtedly shock a matron who thinks things "look neater" if everything is uniform. The result has sometimes been shown in the remark of a house officer, "It's interesting to see how that patient quieted down after you took off the restraint he had on in the other service."

In endeavoring to do away with mechanical restraint, I do not think I have fallen into the excessive use of drug restraint. I have used the milder sedatives, bromide or veronal, in moderate doses in a good many cases, especially in alcoholic cases, but I have very rarely prescribed more powerful drugs, hyoscine, morphine or even chloral. An occasional wet pack, forced feeding, absolute avoidance of alcohol in the alcoholic cases, a few moderate doses of bromide and more or less persuasion have usually sufficed.

The question naturally arises, "What has been the result of all this? How can you get on in a general hospital and open wards with these excited, noisy patients if you do not restrain them?" In the first place most of these patients are not excited and noisy unless they are restrained. If the physician takes alarm at the first symptoms of aberration, restlessness or disarrangement of the bed clothes and applies restraint, the patient becomes irritated in consequence and is ready to make trouble. Even when the patient is excited and noisy we have managed to get on with very little restraint, and apparently we have done better without it. In four years there has been no suicide, no patient has escaped from the hospital, and only very rarely from the ward, and no patient has seriously injured himself or others. I speak solely of my own service, but I think the same holds true of Dr. Thomas's service. This is what any man with insane hospital experience ought to expect, but some have seemed disposed to question whether, without the regime of an insane hospital with locked doors and violent wards, no restraint was feasible in an open hospital ward. Cases will undoubtedly occur which will give rise to trouble—suicides, escapes, assaults,—but they occur even in hospitals for the insane, and they are not common. Cases of incipient mental disease, "border-land" cases requiring a period of observation to determine their mental state, even the emergency cases picked up by the police, can perfectly well be treated in the wards of a general hospital, as our experience in the last four years has shown. They make more trouble for the nurses and give them more work; they are a source of anxiety to the administration and the staff, but they can be dealt with without much harm, provided the physician knows how to deal with them.

Another question, which is often regarded as a bugaboo, is the legal status of these patients. It is urged that we have no legal right to receive such cases or to hold them against their will, or, if the patient be violent, to put him under restraint. This is perfectly true, and,

of course, a very serious difficulty to which we usually pay no attention. Once in a great while a patient has stood upon his legal rights and demanded immediate discharge, but a few excuses and delays have given time for the necessary steps for commitment, when it has been necessary.

Four years' experience has convinced me that, even without a special psychiatric pavilion or psychiatric wards insane patients can be received and temporarily cared for in the open wards of a general hospital with comparatively little restraint and that such a procedure is attended with somewhat more trouble, but no great risks. The question arises, however, what is the good of it all? The statement of the trustees gives a partial answer which merits a little more consideration.

In the first place, if mental cases be received in a general hospital, it is an easy way of dealing with cases of acute onset or the cases which fall into the hands of the police. A case of dementia praecox, suddenly attacked with mutism and found wandering about the town acting strangely, can be brought to the hospital without delay, without legal formalities and without waiting to hunt up his friends, and can receive immediate treatment, just as if he were attacked by apoplexy or were the victim of injury. This is often of advantage and it may prevent neglect or ill treatment, such as the insane used to receive in police stations. With a psychiatric hospital within easy reach, if admission be not made too difficult, it may, of course, serve the same end.

Still more important are the cases which do not fall in the hands of the police, but who either come of their own accord or are brought by their friends. In such cases the general hospital can be of great service to the community in three different ways. A patient may present obscure symptoms which make the mental state a fit object of inquiry. He can be subjected to observation until a definite diagnosis and suitable provision for his future can be made, without any disturbing legal procedure and without alarming the patient or his friends with immediate processes of commitment. A patient in the early stages of some mental disorder can be thus cared for until it is easy to determine what is best to be done. The family is often very loath to admit that there is actual insanity and shrink from the formalities of commitment even though the nature of the disease and its probable outcome are fully explained. They grasp at every straw to avoid commitment to an insane hospital and suggest home care, a sanitarium for nervous diseases and the like. If the patient be taken to a general hospital they have a chance to watch his condition for themselves and to realize his unfitness for anything but asylum care. The idea of his insanity gradually grows in their minds and they become more reconciled to accepting the inevitable than they would be if the experiment had not been tried. Time is afforded for family councils, for personal investigation of desirable hospitals and for a fuller realization of the patient's actual mental state. The general hospital thus exerts a beneficial and desirable influence by lightening the burden of a family in its time of distress.

Finally, cases of short duration can be treated in the general hospital until they are able to return home and can combine treatment as out-patients, on the "after care" principle, until recovery is complete, thus avoiding an official recognition of the "stigma of having been insane."

This stigma is of great influence upon the minds of the general public and it is by no means as unreasonable as we try to assume. It is unreasonable to regard insanity as a disgrace, but that belief is dying out, but it is not unreasonable to recognize the fact that insanity is to a considerable extent a stigma both economically and socially. The employer of labor, in the broadest sense of the term, may very properly question the efficiency of the employee who has been officially judged to be of unsound mind. Even if he has been allowed to go at large and has been pronounced recovered, has he the quickness of perception, the accuracy of memory, the intelligence, the judgment, the decision that are requisite? Is he as good as he was before or as good as the rival candidate who has never been adjudged insane? The answer to both these questions may be yes, but the employer is justified in asking them, and the mere fact that they can be asked excites a certain prejudice against the victim. It is his misfortune and not his disgrace, the question may be raised without any justification, but the previous insanity remains as a handicap, and the employer is justified in doubting his efficiency as he would be in doubting the efficiency as a look-out man of the applicant who wore ten dioptre glasses.

Furthermore, until our modern craze for eugenics has passed to that land of oblivion where Annie Rooney watches the march of the Mulligan Guards, some will doubt, perhaps wisely, perhaps without reason, even if the state is not sufficiently up-to-date to have a eugenic marriage law, whether M. or N., if once adjudged insane, is a fit person to be joined in holy matrimony.

If, therefore, a person suffering from some acute mental disease, which does not impair his mentality afterwards or influence his future offspring, can be treated without an official, legal recognition of his trouble, it may be of great advantage, a positive benefit to the patient and the community.

That such cases can be treated and get well in the wards of a general hospital, even if the conditions for their treatment be not ideal, has

been shown many times in the last four years. I will not go into details but indicate in a few instances what has been done.

A young musician, neurotic and with a bad family history, entered the hospital with a rather severe pneumonia attended with delirium. After the pneumonia had wholly cleared up he developed hallucinations, which seemed to him real, mental confusion and some delusions. He was transferred to the neurological service, where, after a time, the hallucinations began to lose their reality and the delusions subsided. He was encouraged to disregard his hallucinations and finally improved so much that he was able to go into the country with some friends. It seemed at first as if the trouble were likely to develop into dementia precox, but he eventually made a complete recovery.

A Russian Jew, speaking little English, came to Boston, where he met with some business disappointment. He was picked up by the police and brought to the hospital weak and cataleptic. Later he became confused and had hallucinations. He also seemed at first a typical dementia precox, but later, after the arrival of his wife and the straightening out of his financial troubles, he made a complete recovery.

An alcoholic patient was admitted to one of the medical services where he speedily developed delusions of persecution with hallucinations of sight, smell and hearing. Under the sway of these delusions he made a dramatic escape one night over the wall in his nightgown and was brought back by the police from Washington Street, where he was trying to board a car. He was transferred to the neurological service for commitment and gave a very dramatic account of his escape, detailing all the facts most accurately. After a few days of careful attendance and re-assurance his delusions disappeared and he recovered completely.

A police officer, markedly alcoholic, but who denied syphilis, was admitted to the laryngological service with edema of the glottis, and tracheotomy was performed. After that he became much excited, tried to escape and was noisy and troublesome. He showed marked euphoria, considerable exaltation, lack of comprehension, slurring speech and the inconsequential manner of a paretic. There was failure of memory, the handwriting was suggestive and the pupils sluggish. He had, however, considerable insight, and, when I saw him in consultation, knew who I was and that I had been called in to determine his mental state, and commit him to an insane hospital. The Wassermann test in the blood and cerebrospinal fluid was negative, the globulin reaction was negative and there was no increased leucocytosis. He began to show less excitement so that I resisted the pressure to commit him, and a few weeks later was able to send him to the country, where he made a complete recovery.

It is sometimes said that a general hospital is not adapted for the treatment of the insane because it has not the facilities of an insane hospital. It is not adapted for permanent treatment. It lacks the opportunities for work, entertainment, exercise, out-of-door life, and recreation which are such important factors in our modern hospitals for the insane. It has, however, certain advantages which are not to be wholly ignored. A few years ago a good deal was said about "bed treatment" in the early stages of the acute psychoses. That, of course, is what a patient is likely to get in the wards of the hospital. Furthermore, unless he be very demented or confused, he enters into an atmosphere of physical sickness which is inevitably impressed on his mind. He is in a ward with others who are manifestly sick persons, therefore there may be something the matter with himself, his hallucinations and delusions may be the product of physical disease. The suggestion of the hospital ward may help to establish an insight into his own condition. This, of course, may be a disadvantage in somatopsychoses of a hypochondrical nature, but in other cases it may do good. In some alcoholic cases of a paranoid type, where the patient insisted upon getting up and leaving the hospital, I have found that the suggestion that the patient was in the hospital with other sick people because he was sick himself, and that he ought to stay a little longer until he was better, actually worked, and the patient stayed until he recovered.

If, therefore, the Trustees can express themselves as they have in their last report, it is no emotional conversion but a simple recognition of what four years' experience has shown, that it is feasible for a general hospital, even without a special ward, a hydrotherapeutic plant and other aid, to receive and treat both doubtful and pronounced cases of mental disorder, with little restraint and without great risk of serious results; that it is also feasible to treat some cases of short duration until they recover; and that the reception and treatment of such cases is a benefit to the patient and his friends, by giving an opportunity for study of his condition, for deciding upon the proper disposition of the case, and, perhaps, by preventing the stigma which actual commitment may inflict.

I would go a step further and say that it is the duty of every large general hospital to take such cases. The mental patient has a claim upon the benefits of a public hospital just as well as the surgical, the gastric or the renal patient. To be sure the reception of such cases means some extra trouble, a few more nurses and more anxiety for the staff and the administration. The adoption of aseptic methods in the surgical wards meant much more trouble and vastly greater expense. There are certain risks involved, but our experience, though limited, has shown that they are not very great. Every good hospital for the insane has its escapes, its suicides, its act of violence. The general hospital may expect them as well; they are a part of the game, but the benefits to the community outweigh them.

One word in conclusion. It is not practical to receive and care for such patients in a general hospital unless there be a special service under the charge of a visiting neurologist familiar with mental diseases and their treatment. The average American internist is too ignorant of mental and nervous diseases to deal properly with such cases. Something more is requisite than restraint while in the hospital and commitment at the earliest opportunity. The visiting physician must be familiar with mental diseases, he must be able to make a sound prognosis as well as diagnosis, must know how the patient is likely to behave and be ready to assume risks and to take proper precautions. He must have the control of his patients and their treatment without interference from administrative officers, and must be alone responsible for the treatment, the stay in the hospital, restraint and commitment. Only under such conditions can the reception and treatment of cases of mental disorder in general hospitals be of full benefit to the patient and the community.

[Since reading this paper I have learned from Dr. H. M. Adler that, at the Psychopathic Hospital, they had recently compared the death rate from alcoholism at several different hospitals, and that, since the establishment of the neurological service at the City Hospital the death-rate from alcoholism at that institution, in spite of defective facilities for treatment, has been reduced one-half.]

MEDICAL INSPECTION OF IMMIGRANTS AT THE PORT OF BOSTON.*

BY A. J. NUTE, B.S., M.D., BOSTON,

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While the above heading is given as the subject this evening it applies in general to all ports of the United States. The story of immigration is as old as the history of the United States; in fact with certain qualifications it is the history of this country. While laws in the early days provided for the restriction of inanimate goods, more or less unwritten and written law restricted the human being from certain localities, which finally grew into organized law for the protection of the community. For example the Quaker was not welcome in the land of the Puritan and Virginia gradually closed the door to redemptioners. Our institutions have been founded by, supported by, and in turn supported aliens and their descendants. The first rule of national life is self preservation and as immigration still has an important rôle in America national life it must be carefully scrutinized to admit the desirable.

The medical aspect of immigration was brought to public notice about the year 1824 when New York City attempted to levy a head tax on all foreign passengers arriving in that city; later in 1847 a similar act was passed by the state. This money was intended for the support of an immigrant hospital. It was declared unconstitutional in both cases by the courts on the ground that the power to regulate commerce was vested in Congress and not in any state.

This was probably the first restrictive policy that was actively started but of course the whole earlier history of the country showed that economic pressure tended to restrict newcomers to those nearest the race, language and ideals of the region. For many years each state dealt with the problem of restricting the entry of diseased aliens as best they could. Of course this was very difficult owing to the ease of passing from one state to another.

When the Federal Government took supervision of the matter in 1882 a general rule was adopted to reject those who suffered from physical defects liable to make them public charges, note being made of insane, idiots and persons unable to take care of themselves. In 1891 this law was further extended to include those suffering from loathsome or dangerous contagious diseases. In 1903 the most radical step was taken when the Government placed a fine of $100 on the steamship company, in addition to exclusion, for each case of a loathsome or dangerous contagious disease that could have been detected by competent medical inspection at the time of embarkation. In 1907 the law was extended to exclude epileptics, feeble-minded and persons who have been insane within five years, or have had two or more attacks of insanity at any time previously, tuberculosis (meaning tuberculosis of the lungs, intestinal tract or the genito urinary system) or those suffering from such mental or physical defect which may affect the ability of the alien to earn a living. At the same time idiots, imbeciles and the tubercular were placed in the $100. fine class. In 1891 Congress turned the work of medical inspection over to the Marine Hospital Service (now the Public Health Service.) This Service has published definite rules for the medical examination of aliens which if followed insure a uniform system of inspection and records at all ports of entry.

Whether an immigrant belongs to the excluded class or not is a function of the immigration officials. This is often confusing to many for it must be understood that the Immigration Service is a Bureau of the Department of Labor and the Public Health Service is a Bureau of the Treasury Department. Hence the two Bureaus work together; the certificate of the medical officer constituting the legal evidence

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upon which the immigration officials base their action, in mandatory cases and in other cases consider the certificate from the standpoint of affecting ability to earn a living or likely to become a public charge. Seldom does the alien suffer from too harsh a medical judgment. All things taken into consideration he gets the best end of the doubt for the rules require the certificate to be based on conclusive evidence. For example a case of pulmonary tuberculosis cannot be so certified unless a microscopical slide showing the bacilli can be demonstrated.

Briefly the law divides all defectives into three classes and makes no distinction between cabin and steerage passengers. United States citizens of course are exempt from examination but may be called upon by the immigration officials for satisfactory evidence of citizenship.

CLASS A. Mandatory exclusion because of definite specified diseases such as idiocy, imbecility, feeble-mindedness, insanity, epilepsy, tuberculosis, loathsome or dangerous contagious diseases.

CLASS B. Aliens not under Class A., but present some defect or disease affecting ability to earn a living, as hernia, heart disease, defective nutrition, varicosities, presenility, certain diseases of the nervous system, chronic joint diseases, marked defective vision and tuberculosis of the skin, glands and joints.

CLASS C. Aliens presenting defects or diseases of less seriousness but must be certified for the information of the immigration officers that they may pass intelligently on the case.

In order to prevent any alien slipping by without examination by doctor every passenger carries an identification card. In the cabin this card is punched as each alien passes the medical officer so that the inspector can tell at a glance whether or not he has been seen. As the immigration inspectors are on the alert they usually return to the doctor any alien who presents any unusual physical or mental appearance even if his card is punched. To prevent delay a slight abnormality such as a scar of the face from a burn is noted by the doctor and a slip given the alien noting the condition and stamped "Special Medical Passed." The steerage usually being examined on shore are checked by attendants to prevent any oversight. At Ellis Island the steerage passengers' inspection cards are stamped in ink by an attendant.

In the law contagious means communicable and loathsome contagious mean those whose presence excites abhorrence and are essentially chronic such as favus, ringworm of the scalp, leprosy venereal diseases. Dangerous contagious diseases may be illustrated by trachoma, hookworm and amoebic dysentery.

The method of conducting examination must vary somewhat with local conditions and to accomplish this without undue annoyance to travelers, without delaying traffic requires care and tact on the part of the medical officer. Before inspection two sources of information are at hand; the manifest sheet and the ship surgeon's report. How reliable this information is depends on the type of men filling the forms. When one considers that nearly all immigration is carried in foreign ships manned by foreign officers it requires experience in dealing with them to estimate the value of their reports. As far as possible all inspections should be made in daylight for under artificial light certain diseases involving different hue or alteration in the skin cannot be noted accurately.

The medical examination is divided into two parts, primary and secondary. In the primary the efforts of the examiner is directed toward segregating from among those presented those suspected of having disease, defect or abnormality of any kind in order to enable the healthy to proceed without unnecessary delay. Secondary; to make a systematic inquiry as to the signs and symptoms in those turned aside in order to determine a diagnosis and proper certification. The alien may be detained for any reasonable period of observation required to complete the diagnosis and if necessary hospital treatment provided.

Primary inspection is conducted on an even level surface, so that the passenger may not be tempted to look where he is stepping. Care is taken against crowding, to maintain a line evenly spaced and to have as little baggage carried as possible. The examiner stands in a position to secure as even illumination as possible. Direct sunshine in the face or reflected from the water must be avoided. To also facilitate the work the line should make a right angle turn in front of the examiner in order to secure a good view of both sides and back with the least effort.

The examiner then proceeds in a systematic manner to examine the line as it approaches. Standing with the light falling over his shoulder he begins his study of the alien at about twenty feet distant. Beginning with the feet at that distance, as the alien draws near the eye gradually rises from the feet to the head without effort. The character of the gait or other defect of the lower extremities will attract attention such as flat feet, nervous disorders, deformities, abnormalities, joint diseases, or artificial legs. As the glance sweeps upward undue prominence of or about the groins may be noted, the hands as they furnish important evidence of the general physical development, diseases of the respiratory and vascular system, disordered or impaired nutrition, defective mentality, nervous, cutaneous diseases besides local defects and deformities. The abdomen noticed for undue protrusion, ascites, splenic enlargement, pregnancy and abdominal tumors in general. The chest for asymmetry, undue prominence, defective development and the back for evidence of spinal disease and deformity. The neck is surveyed for goitre, abnormal pulsations, enlarged glands, tumors and deformities. The

head is examined for abnormalities such as unusual shape deformity, disproportion, and asymmetry affecting the bones of the face and skull; this includes any signs of disease of the ears as well as the skin. The oral and ocular membranes act as an index for anaemia, while the scalp and beard are scrutinized for evidence of ringworm, favus or other infection. By this time the alien has arrived close enough for the eyes to be taken into close detail and the lids everted for the detection of trachoma.

A feminine voice may further confirm the suspicion of arrested sexual development which has been aroused by noting the absence of beard and the peculiar wrinkles about the upper lip, a tremulous voice often found in alcoholics, scanning speech or hoarseness make us at once turn off a case for more detailed examination.

Not only sight but the sense of touch and smell play a part. The hand against the forehead gives an idea of the presence of fever at the same time sight is taking in conditions about the mouth. Response to a simple question gives an index of hearing and mental reaction, while the sense of smell simultaneously may arouse suspicion of uraemia, ozaena, favus, foul discharge from ear, abscesses or ulcers concealed by clothing.

Associated with this the examiner acquires a habit of noticing unusual conduct, bearing, language, peculiar facial expression and emotional outbreaks. Febrile changes are constantly watched for, signs of exanthemata and in infants one of the most obvious signs of respiratory changes may be noted by watching the movements of the alae nasi muscles. Defective vision is often detected by squinting, a desire to keep in the proximity of accompanying persons, a tendency to look downward while walking, avoid the gaze of the examiner, indecision or confusion in the sense of orientation when obliged to make a sudden change in the direction of his course.

By the time the immigrant is face to face with the examiner a general impression has been formed and it has either been so favorable that the alien is passed at once or something may have been noted to cause his detention.

The above gives briefly a general idea as to what observation shows on the primary examination and the secondary examination is the regular medical procedure to confirm a diagnosis or pass the alien.

To the casual visitor it may seem a routine condition and tend to justify the criticism of a writer that I quote from a Boston newspaper. "The immigrants simply file past them and they look hard at them as hard as they can and that is about all they do. If they are looking for any particular one they switch him off for further examination and they do the same if their suspicions are aroused. They are really very clever at detecting skin and eye diseases and do their best work in that line. They don't see all and thousands get by them. Diseases like tuberculosis of the lungs are constantly coming in against the law; all except the very advanced cases getting in. Still more important are the diseases of the mind, the feeble minded and the insane which are rarely detected." Owing to the critic's lack of knowledge of the immigration law, lack of experience in the practical side of the examination and its results, the above is a good description of the impression made and is of about the same value as the opinion of the medical student who after attending a few large surgical clinics, said that all there was to surgery was "cut it off or cut it out." As matter of fact there is much more to it than the casual visitor ever sees unless he is willing to spend plenty of time in careful investigation of the subject from all sides.

A knowledge of racial types and their peculiarities is essential, for without this a great many normal persons would be detained, hence ethnology plays an important part.

Since the days of laboratory and other aids to diagnosis we have tended to lose sight of the value of observation and what it may tell us until we are reminded of it by some expert like the late Professor Fitz of Harvard. It is of interest to note that over seventy-five years ago Robert Ferguson in a lecture before the students of King's College, London, stated "That there is a right and wrong method of observing is evident since mankind has always observed but rarely discovered." In fact it can be safely stated that almost no grave organic disease can have a hold on an individual without stamping some evidence of its presence upon the appearance of the patient evident to the eye or hand of the trained observer.

It must be borne in mind that owing to certain limitations immigration inspection is a sieve and not a dam, also medicine is not a science like mathematics. It would be decidedly unfair to certify a person on suspicion, hence it is a wise provision in the regulations that calls for definite evidence and gives the alien the right of appeal. While to those that look on from the outside it may seem as if little is accomplished; if one considers the fact that the stream of men, women and children passing in line is really composed of a body of individuals from whom the physicians in the employ of the steamship companies have already endeavored to eliminate the physical and mental unfit, it may be a matter of surprise to know that about 1.5 per cent. of the total number of immigrants arriving at the ports of the United States have been certified for physical or mental defects that would place them in one of the classes which either rendered deportation mandatory or required the alien to submit satisfactory proof that his disability will not make him a public charge.

To show how experience in this work is necessary to avoid the mistake of confusing racial characteristics with pathological conditions some

conditions met with will be described in the following paragraphs.

It takes considerable experience to know what constitutes the healthy color in a given race. A healthy Gypsy might readily be suspected of having Addison's disease, a healthy Greek of suffering from malarial cachexia or malignant disease. A normal West Indian Negro sometimes has the peculiar pallor suggestive of tuberculosis and the temperate Alpine mountaineer often dilated capillaries resembling those seen in chronic alcoholics. Sea sickness may readily leave bad effects for some days and the pallor and weakness suggest some serious constitutional disease.

Pulsating blood vessels in the neck are often caused by fright increasing the heart action and it can be readily noted that all or nearly all immigrants pass before the doctor in a high state of nervous tension, for they believe that once by the medical officer the battle is nearly over. This is not their first medical examination. They have seen others weeded out before leaving, while during the voyage weird tales of all sorts have been poured into their ears as to what may happen with all the local color and exaggeration characteristic of human nature.

Irritation of the conjunctiva caused by certain occupations involving exposure to smoke, dust or heat, such as iron workers, bakers, coal miners and line workers may cause a chronic inflammation and scar formation of the lids simulating an old incompletely cicatrized trachoma.

The face of a muscular able-bodied Italian peasant often is so devoid of fat and muscle tissue that on first sight one would think that the whole body was thin and undeveloped. The complexion of the Slavish peasant woman would be suspicious of chlorosis if possessed by a Scandinavian or English woman of the same class. On the other hand the red cheek of the Scandinavian would arouse thought of a hectic flush if seen in the Polish woman.

The excitably of the southern Italian and the Hebrew are well known. It is easy to excite in them almost maniacal action. The stolidity and indifference of the Slav would suggest melancholia if presented by the Hebrew. The sanity of an Englishman would be questioned if on slight provocation he evinced the external manifestation of emotion that would occur in the Sicilian. The German girl takes her examination seriously and her sanity would at once be suspected if she saw the same reason for light remark and laughter as the girl from Ireland. Some races are extremely emotional, others slow; and unless the normal is known it is impossible to pick the abnormal. In short, in determining mental conditions by inspection the first essential is to determine the race or type of the individual and to have a good knowledge of his racial characteristics. To the trained examiner the facial expression, attitude, mannerism and dress convey an expression of understanding. It would be difficult for an examiner not familiar say with the Syrian peasant type to form any opinion of his mental calibre from his appearance or attitude alone. A few questions will determine reaction and orientation. If from this nothing is noted the alien may be allowed to pass, otherwise he is held for a more complete mental examination.

It is unpracticable under the present law and facilities to consider every alien a possible mental defective and subject him to complete examination unless on primary inspection there were some signs of mental disorder. With the feeble-minded, the facial expression and attitude is a valuable index except in the high-grade types where it is negligible and is then a matter of judgment and experience of the examiner (based upon the normal) to decide how much lower the suspect is in the mental scale, considering all the factors of race, previous environment and education.

Owing to the lack of agreement among experts as to where the normal ends, the mental problem is a difficult one. The term mental instability, psychopathic tendency or constitutionally inferior can be referred to a class whose mental organization is of the weakest, yet showing no definite mental symptom at present, would go on normally in primitive surroundings but on slight stress such as found in a new country with its disappointments, its strange language and customs become mentally disordered.

Investigators that have given careful study of the subject agree that the medical inspection is no farce. Examiners that have had years of experience in the service have seen a marked increase in efficiency due to experience and increased facilities. It is by no means perfect but is being improved as fast as Congress will grant authority and facilities. There are still many loopholes and any attempt to seal them is naturally fought bitterly by those interested in keeping an open gate.

Rarely are newspaper or magazine articles on the subject fact but rather sentimental fiction with just enough fact to give a foundation for a good story.

Every time a defective is admitted it is an inducement for many more to try. If the public were truthfully informed it would result in the country receiving a better physical and mental type of immigrant and in turn the immigrant would or could have better treatment and protection.

It has been estimated that out of the alien head tax of $4.00 about twelve cents pays the cost of the present inspection. If this is true the public treasury is certainly not being drained by the medical department.

The work is hazardous and requires men of good physique. Furthermore, they must be interested in the subject in order to pay close

attention to their work. In the busy season the constant standing and mental concentration tend to produce breakdown and there is always the chance of contracting contagious diseases.

PTOSIS—A CAUSE OF GYNECOLOGICAL FAILURE.

BY F. S. KELLOGG, M.D., BOSTON.

MANY patients continue to be sick after gynecological operations performed for their relief or cure. This is due to many well-known causes, perhaps the most potent being that much gynecology is done on patients who cannot or will not afford "after treatment," used as an all embracing term.

That ptosis unrecognized or untreated is often the cause of this failure to get results I feel sure.

Four cases seen in the last six months show this is so, even in good hands. Out-patient hospital cases show it more often.

CASE 1. Miss S., 25 years old. Stenographer. Operated three years ago. Complaint at that time, constipation and bloating, pain in back, dysmenorrhea, fainting between and with periods. Operator is one of New England's foremost gynecologists. Operation, D. and C. Appendectomy, resection cystic ovaries, ventral suspension. Result of operation: As before except that periods easier for several months, when they became as painful as before operation. Referred by family physician, with statement that case is very neurasthenic. Wishes to know if there is anything in pelvis to account for symptoms.

CASE 2. Mrs. K., 40 years old. Married, 2 children. Operated two years ago. Complaint at that time, nervous debility, backache, leucorrhea, constipation and indigestion. Operator one of Boston's foremost gynecologists. Operation, amputation of cervix. Since operation previous symptoms all worse; referred by physician with statement that he finds nothing wrong medically, that patient is neurasthenic, and complains constantly of soreness in the abdomen. Wishes to know if there is anything in pelvis to account for this.

CASE 3. Mrs. S., married 6 years; 27 years old. Five months after marriage consulted physician for pain in left lower quadrant, vaginal discharge, pain and burning on micturition. He told her the womb was tipped and said he replaced it. The pain continued, she became very constipated and "felt her food," so she consulted another physician. He told her she had "inflammation" and treated her for it three years; at the end of this time he felt he was not getting results and called in consultation a reputable and well-known gynecologist. He operated, D. and C., left salpingectomy, resection left ovary, appendectomy, and suspension. Result: Pain as before, constipation and gas worse. In 1912 she became pregnant and was delivered by operation of a living full-term child, the next day her cervix and perineum were repaired. Since the baby, which was followed by an afebrile puerperium, she has had her previous symptoms increasingly, has lost 25 pounds, and has been markedly tender in the lower quadrants, has had no coitus on this account. She is referred by her physician who wishes to know if what he finds in her pelvis accounts for the symptoms.

CASE 4. Mrs. H., married, 24 years old. Delivered by Caesarian section 18 months ago by well-known obstetrician in Boston. Indication, generally contracted pelvis. Since operation bowels have never moved without strong cathartics, has soreness in abdomen, bloats so that rarely can wear a corset. She returned to the obstetrician and was treated medically by him for some time, then went to three physicians in own district and had stomach washings, rectal washings, and bladder washings. Referred by last physician, who wishes to know if anything in pelvis accounts for symptoms and loss of weight. Suggests that gut may be adherent to uterus.

It is only fair to call these cases complete operative failures, save perhaps for the baby in case four. These patients felt they had not got their money's worth. They knew they were neurasthenics because many doctors had told them so, and they were skeptical of the medical profession. The "operative failure" who has had "neurasthenia" wished on her by some doctor is difficult to help.

These four patients had ptosis when I saw them. They had symptoms of ptosis when operated upon except the last, in which it subsequently went unrecognized by the operator Regarding the pelves—Case I. had a retroversion temporarily adherent recurring after her operation. Case II. had nothing except a beautiful new cervix. Case III. had a recurrent temporarily adherent uterus and tender vaults without masses. Case IV. had an uterus adherent to the lower end of a high Caesarian scar, pelvis otherwise negative. Case I. had uterus replaced and held with pessary after depletion; it helped the periods, nothing else. Case III. had the same; it helped the pelvic tenderness, nothing else.

They were relieved of all symptoms, including "neurasthenia," by mechanical support of the abdomen.

There seems to be some question among good physicians whether the disease ptosis exists. By the disease ptosis I mean dropping of viscera, especially the transverse colon, giving rise to intestinal stasis, "indigestion," sometimes gas formation. And gas stasis, giving rise clinically to bloating. It is not necessary in admitting this to admit the far reaching well-known conclusion of Metchnikoff and Lane of the influence of this sequence on other organs as a factor in the production of other diseases. To illustrate this skepticism: I had operated not long ago on a young woman with a membranous adhesion between ascending transverse colon, and omentum. She had resisted treatment at the hands of a

good medical man, together with mechanical treatment carefully carried out over a period of two months. X-Ray showed bismuth in the dilated ascending colon 30 hours after ingestion. Operation showed the adhesion and the ptosis precisely as the x-ray man had promised. The patient had lost 25 pounds in ten months. Though too recent to be sure of a cure, she has gained five pounds, eats well, feels well, and has good color. My etherizer met in the hall a medical acquaintance, an excellent physician, and spoke of the case in some detail. The excellent physician replied that he had doubts about *all* this visceroptosis business for he saw so many patients with ptosis without symptoms. I think, considering the mass of observation on the subject, and the therapeutic results in orthopedic hands that this is ultra-conservative. Valvular heart disease without symptoms is fairly common, I believe; it is common to have symptoms with valvular heart disease. So with ptosis, it occurs with and without symptoms.

Regarding the diagnosis it simply requires that the observer be looking for it. The appearance of the abdomen with gutters running down on either side from the ribs to about the level of the umbilicus, plus the symptoms specially bloating or a sense of bloating and soreness plus any, all or none of the four tender points, right lower quadrant, hepatic flexure, left lower quadrant, splenic flexure; and the x-ray will confirm it if one wishes. The condition if of long standing makes the patient thin so that the abdomen, especially in nullipara, is not necessarily protuberant and these cases oftenest escape detection.

The treatment of uncomplicated ptosis belongs by right to the orthopedic surgeon, and has been best described and carried out by him. A most striking therapeutic result is obtained in straight ptosis by the well equipped orthopedic emporium. There in addition to the mechanical support, the corset, the details of which they best understand, they command the means for teaching strengthening exercise and profitable posture. In short, any case of ptosis, certainly if the x-ray shows it free from bands, adhesions etc., not doing well in the hands of any other branch of the profession should have the final benefit of treatment in the hands of the orthopedic surgeon. I believe as well that this treatment will benefit many cases with apparent bands, membranes, etc., and think it should be given a fair trial before cutting operations are resorted to. It is not time lost because after cutting surgery it seems reasonable that a better permanent result will be obtained by orthopedic support than if this is neglected and the "orthopedic education" is better taught before operation than some weeks after it when the patient recovers sufficiently to make it possible.

It is not the purpose of this paper to consider the details of ptosis treatment, a matter already laid before the profession by far abler minds with far broader experience. It requires considerable study and much patience and fussing, especially when working with a cheap enough corset to make the treatment acceptable or possible to the patient who is "doctor-poor" from previous experience. Such a one will not have faith enough to pay $25.00 for a corset, certainly not at first.

It may be said in passing that skepticism with regard to the pathological entity of ptosis illustrated earlier, is nothing compared to that with regard to treatment by corset support among many physicians who have tried it. They say they have "thoroughly tried it out and there's nothing in it." Their methods of thoroughly trying it out develop on further questioning to about that of leaving the patient in a room with a corset, some very hygenic corset, and letting them get acquainted. Another method, somewhat better though still bad, is to ship the patient to a lady corset maker, who may or may not help, depending somewhat on the embonpoint of the individual, the fatter patient getting the better service because the cosmetic effect especially of the only just now dying style, and the hygienic necessity somewhat parallel. The thin ptotic has no chance in the world with her. The orthopedic surgeon, he himself, not even his trained corset maker or trained nurse, fits and adjusts his corsets with a definite object, and anybody else must do the same to get results. And a $3 or $5 corset made of relatively cheap, stretchable material will stop doing its work in 4 to 7 days after it has been fitted, due to the stretching in fabric and change in figure. After it is fixed it will do it again in ten days, and it will do it again and some more, and must be watched.

One other practical point in working with corsets deserves mention. As a rule prolapsed viscera are not attached to the abdominal wall, even on the inside, and pulling up an abdomen with the hand inside the corset with the patient standing, especially when the patient has dropped to 95 pounds and has no abdomen, does not raise prolapsed viscera. In a manner as breezy as the subject under discussion Codman under title "Our Little Balloons, Some Observations On Gas and Ptosis,"* seems to show that the viscera are toy balloons held down at different levels by strings, the mesenteries, but tending to float up, so that to get the intestines down where they do not belong one must invert the individual, and if the individual walks erect as is customary the balloons remain high in the abdomen as they should. The gist of this somewhat Shavian article seems to be that the orthopedic explanation of ptosis has sought lightning as a cause when the barn took fire from a cigarette in the stall. Be that as it may, the fact is that the toy-balloon of the ptotic be it excellently, as it sometimes is, or poorly, as the article above referred to sug-

* Boston Med. and Surg. Jour., Oct. 9, 1913, vol. clxix, No. 15, "Our Little Balloons. Some Observations on Gas and Ptosis," by E. A. Codman, M.D., Boston.

gests, equipped with gas, is invariably overloaded with sand ballast;—the practical point being that if you place the patient in high Trendelenburg and apply the support and teach the patient to do the same you will get results, otherwise you probably will not.

Nor is it the purpose of this paper to deal with the very suggestive subject of the effect of intestinal stasis on pelvic disease. Nor has it to do with the cases which have adhesions and come to abdominal section. It is to impress that one reason for some definite failures in gynecological surgery is untreated ptosis, and because an operation which promises to cure and leaves the patient as before, though the surgical result is perfect, creates a prejudice against not only the operator but his branch. It appears to me therefore, that a working knowledge of ptosis with its variations is a necessity for those who do gynecological surgery.

THE PHYSIOLOGIC COST OF INSUFFICIENT PROTECTIVE CLOTHING.*

BY G. W. FITZ, M. D., BOSTON.

THERE is perhaps no subject of such constant and vital interest, on which there are so many opinions vigorously supported, as that of clothing. As what we wear is a matter of daily choice, that we may adapt ourselves to the vagaries of weather and climate, and as each individual considers himself the ultimate judge of what constitutes comfort for himself under these varying conditions, the subject is of necessity clouded by a mass of personal, unscientific, more or less haphazard opinion. The chief popular attempt to mould this opinion has been made, not by hygienists nor by physicians, who are as rarely consulted upon this subject as upon the family diet, but by the manufacturers of special fabrics, who have bombarded the public with cleverly constructed statements of the vital superiority of their particular products. As a result of this, there are today a number of clothing cults, supported by this quasi-scientific commercial literature, advocating the exclusive use of wool, silk, cotton, or linen, in knit, mesh, or other forms of weave, and in varying weights.

In an attempt to analyze and explain the various features of personal comfort involved in the different materials and weaves, and to establish the functions of clothing, certain physiologists, notably Rubner, have made elaborate experiments. They conclude that the essential features of ideal underclothing lie in its ability to remove moisture rapidly from the surface of the body and, at the same time, to delay its evaporation at the outer surface of the clothing, in order to avoid chill. The ideal underclothing must further be sufficiently porous to give adequate ventilation to the surface of the body and must contain fibres sufficiently elastic to give a large air and moisture capacity, which they must retain even when wet, thereby avoiding clinging to the skin and loss of ventilation.

The material which in cool weather best meets these requirements in underclothing, they found to be that which Nature has developed in various forms, in her vast experimental laboratory, expressly for the protection of animal life, namely hair or wool; and its mode of manufacture to be the so-called tricot, or knit, weave. The objection to the practical use of wool which they recognize, is its first cost and its liability to be quickly ruined by shrinking when washed.

Next in value to wool, they found silk, which, although somewhat inferior to wool in certain characteristics, has the advantage of being an extremely agreeable and smooth fabric, which is not at all irritating to sensitive skins. The insurmountable objection to its general use is its very high initial cost and its lack of durability in the knit weave.

Cotton proved to be next in value to wool and silk. Cotton fabric however, is somewhat deficient in the essential characteristic of elasticity of fibre. Therefore, when used as underclothing, it has an inferior air and moisture capacity, and fails, even when dry, to conserve the body heat to the same degree as wool. When moist, its inferiority is considerably increased by the softening of its fibres and the consequent reduction of its air and moisture capacity; the ventilation of the skin, to which it tends to cling, is reduced, at the same time that the rapidity of evaporation from its outer surface is decidedly increased. The heat of the body is thereby dissipated so rapidly that chill often results.

Linen was found to be still less desirable than cotton, since it favors an even more rapid evaporation of the body's moisture and thereby greatly predisposes to chill.

The desirable weave for all of these materials, when used as underclothing, was proven to be the tricot or knit, because of the added elasticity and porosity it imparts to the fabrics. In the case of cotton, this weave contributes a firmness which somewhat lessens its tendency to cling to the skin and to lose its porosity when moist.

The open mesh weave Rubner found objectionable in direct proportion to the size of its holes, since it reduces the fabric's ability to absorb and remove from the skin its excess moisture.

We naturally turn from the conflicting and confused opinions of the laity with their vagaries of habit and standards of immediate personal comfort, and the conclusions of the physiologists, which are based largely upon the physical characteristics of clothing in their re-

* Read at International Congress on School Hygiene, Buffalo, August 25-30, 1913.

lation to the heat regulation of the animal body, to the experience of physicians, based upon the observation of the influence of clothing upon health. In this, we naturally expect greater unanimity of opinion through the generalization and elimination of individual peculiarities and the formulation of a consistent standard of clothing use from the standpoint of health.

Being unable to find any satisfactory expression of such medical opinion, I sent a questionnaire to several hundred of the most prominent medical practitioners of America, selected chiefly from Cattell's *American Men of Science*. Rather more than a hundred replies were received. Of these, forty odd, while expressing great interest in the subject, frankly acknowledged total ignorance of it, and admitted an attitude based wholly upon personal predilection, since they had paid no attention to the clothing habits of their patients. More or less complete replies were received from about sixty, and have been tabulated on the basis of positive statements only. Of these, thirty-six agreed that personal comfort was a guide to the kind and amount of clothing required. Thirty-four stated positively that cold hands, feet, nose and ears were reliable signs of insufficient clothing, barring the presence of chronic cardiac or other causative disease. Only eight considered cold extremities consistent with adequate clothing and normal health. Other criteria suggested by a few were general health, resistance to disease, weight and reaction to cold.

In the selection of materials for clothing, although there was not complete unanimity of opinion on the part of those who committed themselves, wool led by more than five to one in its favor. Twenty-seven claimed that at all ages in cool climates wool was a necessary protection. Only five claimed that it was totally unnecessary. Twenty-five considered it essential as underclothing, especially in childhood; twenty-eight considered it also essential as underclothing for old age. Twenty-seven made it essential as outer clothing for all ages. As a more or less complete substitute for wool in underclothing, sixteen favored cotton, three specifying cotton mesh; seven favored linen, four specifying linen mesh; nine favored silk; eight favored mixed wool and cotton.

In reply to the question as to the hygienic safety of the present light-weight winter clothing for women and children, thirty-seven condemned it as unsafe; four were in doubt; eleven approved of it. Among the deleterious effects stated to have been observed were an increased tendency to colds and minor illnesses, poor sleep, lowered intellectual efficiency, decreased growth and development. Twenty-two expected from it decreased, while two expected increased, resistance to disease.

In choice of room temperature, greater unanimity of opinion is apparent, in that only one called for a temperature above 73° F., whereas forty-one chose a range of 65° to 70,° with a marked tendency in favor of 67° to 68°. The remaining eighteen were non-committal, with the exception of four, who thought higher temperatures at times necessary, unless the great dryness of indoor winter air was neutralized by additional moisture.

The following diseases were recognized as having, in their experience, been associated with inadequate protective clothing: bronchitis, by 30; nasal catarrh, by 27; pneumonia, by 26; pleurisy, gastro-enteritis and rheumatism, by 22; nephritis and tonsillitis, by 19; tuberculosis, by 18; middle ear and antrum inflammation, by 16; catarrhal jaundice, gastritis, rheumatoid arthritis and imperfect nutrition, by 14; retarded growth, by 13; dyspepsia and neurasthenia, by 10; osteo-arthritis and villous arthritis, by 8. Thus many physicians are seen to recognize as results of under-protection by clothing, not only acute catarrhal troubles, but also remote and essentially chronic organic, joint, and nervous ailments, which, in their inception, may in no wise affect the individual's immediate sense of comfort and against which he may not therefore guard himself.

A large proportion of the prominent physicians who replied to my questionnaire would thus seem to be in agreement with the findings of the physiologists, that wool is the superior material for clothing and that it is a necessary safeguard of health.

Their conclusion would appear to be borne out by the practical experiences of men in the more trying branches of labor, where disability is quickly shown, as firemen on steamships and workers in foundries and other places in which perspiring men are exposed to cold drafts of air. I remember, for example, a foundryman coming to my clinic with a markedly painful spinal osteo-arthritis, who, when questioned as to his habits of clothing, replied that, when he went into the foundry, the workmen all advised him to wear wool underclothes and warned him that otherwise his back was sure to become crippled. Because of poverty and a large family, he wore heavy cotton instead, with the result of being permanently incapacitated for heavy work at the end of a few years. This is only one of many instances which have come under my observation and have convinced me of the causal relation between inadequate protection by clothing and remote ailments of rheumatoid or arthritic type, which are not generally recognized as being thus associated.

The deleterious effects of inadequate clothing are not confined to adults. There is a type of child, poorly nourished and generally underdeveloped in strength and endurance, with poor appetite and constantly subject to minor ailments, who is popularly diagnosed as having poor circulation because of habitually cold extremities. We often see in this class marvelous improvement as a result of changing to wool underclothing, sufficient in amount to keep the hands and feet warm. Unfortunately, the change

is often attributed entirely to the tonic medicine which the doctor usually gives at the same time.

Many persons, especially women, are content to go through life with cold extremities, accepting the popular verdict of poor circulation, because they experience no particular discomfort, on account of the essential exhaustion of the terminal sense organs for cold in the extremities. In this class we frequently find developed, usually after the years 30 to 35, many cases of painful joints, especially of foot, ankle, knee and hand. The joints, on examination, frequently show distinct enlargement, that is, are osteo-arthritic in nature. In some, the enlargement is very slight and its sensitiveness greatly in excess of that seemingly warranted by the physical condition. We find further many cases of nervous irritability, ranging from the "nervous stomach" to distinct and painful neuritis of persistent type.

This multitude of cases, such as painful joints in women and children, colic, especially in young children, nervous states seemingly obscure in their origin, malnutrition, sleeplessness, general irritability, and neuritis, which are ameliorated or even cured by a change to warmer clothing, constitute a mass of positive evidence which no amount of personal prejudice or negative experience would seem competent to overthrow. Negatively to argue that dozens of people are seemingly able to maintain their normal equilibrium for years in spite of inadequate clothing is far from proving either that they may not later pay with years of suffering, or that dozens of others do not pay earlier in life. It is the argument used to prove alcohol incapable of harm, because some drunkards live to be eighty.

That, notwithstanding this positive evidence, there yet exists today so much ignorance and conflicting opinion on the subject of under protection by clothing and its physiological cost (it will be remembered that out of over one hundred prominent physicians, nearly half expressed their ignorance of the subject) is undoubtedly due to our failure carefully to study the etiology of chronic diseases, and especially, to get adequate histories of the clothing habits of our patients. The situation is now further complicated by the great emphasis being laid upon the stimulating effect of cold and the miracles it performs, with the result that we are in danger of being swept off our feet in our indiscriminate use of this powerful agent. We are in danger of forgetting that, like most so-called stimulants, it has another and antagonistic side. Brief applications of cold, especially when alternated with heat, are marvelously stimulating to the nutritive processes and nerve control of the body. They train its heat-regulating apparatus to broaden the range of safe exposure to variations of temperature, and under such training, the body unquestionably becomes better able automatically to protect itself.

This use of cold as a stimulant and trainer of the automatic processes of the body is, however, a very different matter from the keeping of any part of the body constantly at a temperature below the normal of 98.5° F. Under these conditions, the delicately controlled heat-regulating mechanism at once acts in defence of the vital organs by partially excluding the blood from the extremities where it is being overcooled. The result is that the tissues of the extremities are kept in a state of anemia and chill. This means in a certain percentage of cases, but apparently not of necessity in all, that the nutritive conditions in bone, nerve, muscle, tendon and other tissue, are so changed that wholesome development and maintenance may be impossible. In this depressed condition, cellular activity is often so seriously impaired that the weak spot in the individual is made manifest, as in the form of overgrowth of tender bone around the joints, or of an abnormally irritable state of the nerve terminals and trunks. The cold, instead of being a stimulant, has now become a depressant of serious menace to comfort and health.

The normal warmth of the entire body, on the contrary, means the maintenance of cell activity at its maximum efficiency through the presence of a rich blood supply, and renders the body most resistant to disease.

It thus appears that each individual has to consider whether or not, through adequate clothing, he will insure himself against the risk of illness or of prolonged discomfort and inefficiency during the later years of his life. It would seem that the safest form of insurance had been shown by physiologists and physicians and by the practical experience of men under trying temperature conditions, to be wool clothing for cool weather, since by its use the body has been found to be fully protected. The expense of this insurance has by many been considered prohibitive, not because of its first cost, but because the life of the porous wool undergarment is so shortened by shrinkage in washing. This objection I have proved to be easily obviated. For the past ten years, my family and I have worn in winter pure wool unions, of varying weights, a form of garment which cannot be worn when even slightly shrunk. By using ammonia in wash water of blood temperature and a so-called wool soap and by avoiding rubbing except lightly with the hands, we have not been able to discover any shrinkage or loss of original softness and pliability. Garments originally bought large, of heavy weight and pure wool, have remained too large even after several years of use, and garments of exact fit have remained so. From the standpoint of economy, therefore, judged by its yearly cost as an insurance against financial loss through illness and inefficiency, knit wool underclothing must be considered remarkably cheap.

From the standpoint of the possible physiological cost of inadequate clothing in lowered vitality, illness, and inefficiency, as well as discomfort, we must consider it extremely fortunate that nature, by its ages of experimentation

to develop for animal life the best protection against wet and cold, has thereby provided the human animal with so adequate a protective material.

In view of the fact, however, that there is so much confusion in the popular mind on the subject of proper protection by clothing and so much neglect and difference of opinion on the part of physicians, and that the positive evidence of disability through underprotection, now at our disposal, is too isolated and fragmentary to be considered fully authoritative, it would seem that the great practical importance of the subject demands that it be more adequately studied in the future.

Since positive evidence of clothing effects upon patients under the observation of physicians furnishes the most valuable data for this study, I shall be very grateful to any physicians who are willing to coöperate with me by sending to me pertinent clinical reports of observed cases or the results of their observations along the lines indicated in the following questionnaire:—

1. Do you recognize as immediate or remote effects of insufficient clothing, any of the following ailments: Bronchitis, pneumonia, pleurisy, gastritis, nephritis, varicose veins, rheumatism, rheumatoid arthritis, osteo-arthritis, villous arthritis, neuritis, neurasthenia, dyspepsia, gastro-enteritis, catarrhal jaundice, nasal catarrh, tuberculosis, tonsillitis, middle-ear inflammation, retarded growth, imperfect nutrition?

2. Do you consider that wool must be used as protective clothing in the cool weather of temperate regions?

As underclothing in childhood, youth, middle age, or old age?

As outer clothing in childhood, youth, middle age, or old age?

3. What do you consider an adequate substitute for wool in protective clothing, as underclothing? As outer clothing?

4. What do you consider the best tests of sufficient protection by clothing?

Are habitually cold hands and feet, nose and ears, consistent with adequate protection?

5. Do you consider the present underprotection in winter of the chests and extremities of women and children as hygienically safe?

What results therefrom have you already noticed?

6. In homes, schools, etc., during winter months, should the temperature be maintained at summer heat, 73°-77°, with indirect ventilation, and the occupants be dressed accordingly? or,

Should the temperature be maintained at or below 70°, with the addition of direct ventilation, and the occupants be dressed warmly enough to insure warm extremities?

FRACTURE OF THE CLAVICLE.

BY F. E. PECKHAM, M. D., PROVIDENCE, R. I.

IN THE BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxvi, No. 21, pp. 777, 778, May 23, 1912, I published a method of treating fractures of the clavicle, which has since proved very efficient. Like all methods of holding a fracture, however, the details must be accurately carried out, each individual case must be treated by itself, and the mechanics made to accomplish the results.

To recapitulate, by means of webbing, (the correct width for the individual case), straps are made with whalebone placed in pockets running transversely and then the whole covered with cotton flannel. These straps go round the shoulders in such a way that the pull across the back draws them sharply backward. In order to accomplish this, the straps must be kept at the tips of the shoulders. See Figs. 2 and 3. When this pull backward is exerted at the tips of the shoulders, the fragments of a fracture of the clavicle are drawn out to length. Then, if this adjustment is continued, union will take place.

It seems to be the custom of the general practitioner as well as the general surgeon to put up such a fracture with a Velpeau bandage with the humerus strapped back, the idea being that strapping back the humerus holds the shoulder back, and that the Velpeau holds it up, and hence in position. It is commonly said also, that these fractures do well anyway, so that they get very little attention. If all the cases put up in this way were x-rayed, many would be found in which the apposition would not be very good, and in the case of women, would mean quite a callus formation, which would be very objectionable in evening dress.

To prove the efficiency of this method of treatment, a recent case will be reported.

This patient had suffered from a fractured clavicle seven and one-half weeks before consulting me. The shoulder had been treated by the usual bandaging, and the x-ray (see Fig. 1) shows the condition it was in, with the fragments riding by. The picture shows no callus formation and there was tenderness on pressure at the point of fracture and also on motion whether active or passive. By grasping the fragments between the fingers, no motion was elicited with a moderate amount of force. To loosen up the fracture, the knee was placed between the scapulae behind, the shoulders were then grasped firmly and forcibly pulled backward against the knee as a point of resistance. Then the fragments were grasped firmly with the fingers and manipulated, using as much force as possible. This hurt some, but no anesthetic was used. Then the straps were applied as shown in photograph. (See Figs. 2 and 3.) Then manipulation was made every day and the straps tightened to correspond to the gain. At the end of a week, or eight and one-half



FIG. 2.
Shows anterior view of strapping.

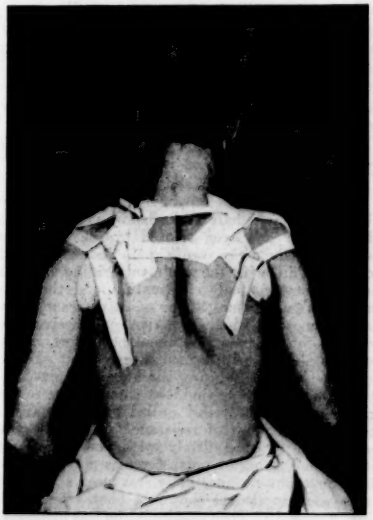


FIG. 3.
Shows posterior view of strapping.

weeks from the fracture, the x-ray showed good alignment, and the shoulder, which before was dropping, is now up to level. Manipulation ceased and the picture, ten and one-half weeks from the accident, shows the position and with callus formation (See Fig. 4.) Also this callus formation is only moderate and in no way does the so-called "bunch" of callus exist.

If such a result can be obtained in a fracture already seven and one-half weeks old, the possibility of duplicating it in a fresh fracture would seem to be good.

Medical Progress.

A REVIEW OF THE PROGRESS IN PATHOLOGY FOR 1913.

BY S. B. WOLBACH, M.D., BOSTON,

Assistant Professor of Bacteriology, Harvard University Medical School.

(*Concluded from page* 613.)

AMEBIC DYSENTERY.

RECENT work by Craig (War Dept., Office of the Surgeon-General, Bull. No. 2), (*Journal of Infectious Diseases*, Vol. 13, No. 1), and Darling (*Southern Medical Journal*, Vol. 6, No. 8) show that the two supposedly distinct species of parasitic ameba, entameba histolitica and entameba tetragena are identical. Entameba coli is not pathogenic. There is not sufficient evidence at present to prove that any of the amebae that have been cultivated are pathogenic to man.

Walker and Sellards (*Philippine Journal of Science*, Section B, Vol. 7, No. 4) also insist upon the identity of entameba histolitica and entameba tetragena. They present also what is perhaps the most important etiological study of amebic dysentery that has been made. Sixty feeding experiments were made upon man with different species of amebae and entamebae. Their results show that none of the amebae and entamebae, which may be cultivated on artificial media, are capable of producing dysentery in man. The cultivated amebae are incapable of living parasitically in the intestinal tract of man. When ingested, they may encyst and pass through the stools, whence they may be recultivated. Entameba coli, however, does multiply in the intestinal tract, but does not produce disease, and this fact was proved by an experiment in which twenty men ingested cultures of entameba coli. Entameba histolitica when given to man does produce dysentery. Out of twenty men who ingested material containing this organism, eighteen showed multiplication of the organism in the intestine, and of these eighteen, four developed entamebic dysentery. The incubation period was in the respective in-

stances, 20, 57, 87 and 95 days, giving an average of 64.8 days. It was also possible to prove conclusively that the forms described as entameba tetragena might occur exclusively in the stools of men who had ingested entameba histolitica only, and that motile entameba histolitica might occur exclusively in men who had ingested only tetragena forms. Other evidence is given which convincingly proves that tetragena cysts are developed in the life cycle of entameba histolitica. This work is of tremendous importance in that it establishes the pathogenicity of only one type of the ameba found in human stools. It makes a positive diagnosis possible,

FRACTURE OF THE CLAVICLE—PECKHAM.



FIG. 1.
Shows the fracture seven and one-half weeks from the accident. The fragments are riding by, and there is no callus formation.



FIG. 4.
Shows the fracture ten and one-half weeks from the accident.

flasks containing the medium with valves and secured anaerobic conditions by exhausting the air and replacing with hydrogen repeatedly. The morphology of the parasite is described and illustrated as minute chromatoid bodies which are similar to those described by a long list of observers in vaccine and smallpox pustules. The cultures and sub-cultures were inoculated into calves and produced vaccine vesicles. The name *Microsoma vaccinae* is given.

Noguchi and Cohen (*Journal of Experimental Medicine*, Vol. xviii, No. 5) using the spirochete culture technic, claim to have cultivated an organism from trachoma. The organism cultivated resembles the trachoma bodies found in human lesions, and there is a morphological sequence in the cultures similar to that observed in tissues, namely, initial bodies, lanceolate or ovoid in shape and occurring in pairs, groups and rosettes, and later extremely minute, round or ovoid granules occurring in pairs and masses. Inoculation experiments on monkeys were negative; a transient papillary conjunctivitis lasting about one week was produced in some cases. Trachoma bodies were not found.

BERI BERI AND SCORBUTUS.

Holst and Frölich (*Zeit. f. Hyg.* Bd. 75, Heft 2) have extended the work which was abstracted in the *Review of Pathology* last year, for the purpose of determining the nature of the anti-scorbutic substances and their preservation chiefly with the nature of beri beri and the substances which prevent the disease—the vitamines. He finds that the vitamine fraction from yeast is made up of three substances; one of the formula $C_{24}H_{19}O_9N_5$; another $C_{20}H_{23}O_9N_5$ and nicotinic acid. From the vitamine fraction of bran, two substances have been isolated, $C_{28}H_{20}O_9N_4$ and nicotinic acid. A table is also given of the composition and value of the various purine, pyrimidin and nuclein derivatives with their allied forms of allantoin and hydrantoin. He finds that those substances were the most active which in composition most nearly resembled vitamines.

STREPTOCOCCUS AND PNEUMOCOCCUS.

Rosenow (*Journal of Infectious Diseases*, Vol. xiv, No. 1, p. 1) describes with convincing detail



weeks from the fracture, the x-ray showed good alignment, and the shoulder, which before was dropping, is now up to level. Manipulation ceased and the picture, ten and one-half weeks from the accident, shows the position and with callus formation (See Fig. 4.) Also this callus formation is only moderate and in no way does the so-called "bunch" of callus exist.

If such a result can be obtained in a fracture already seven and one-half weeks old, the possibility of duplicating it in a fresh fracture would seem to be good.

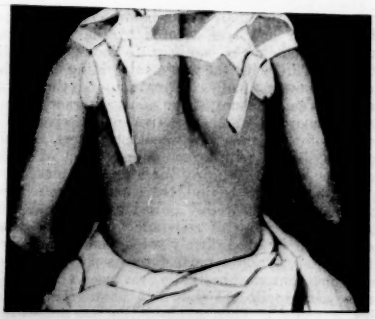


FIG. 3.
Shows posterior view of strapping.

Their results show that none of the amebae and entamebae, which may be cultivated on artificial media, are capable of producing dysentery in man. The cultivated amebae are incapable of living parasitically in the intestinal tract of man. When ingested, they may encyst and pass through the stools, whence they may be recultivated. Entameba coli, however, does multiply in the intestinal tract, but does not produce disease, and this fact was proved by an experiment in which twenty men ingested cultures of entameba coli. Entameba histolitica when given to man does produce dysentery. Out of twenty men who ingested material containing this organism, eighteen showed multiplication of the organism in the intestine, and of these eighteen, four developed entamebic dysentery. The incubation period was in the respective in-

stances, 20, 57, 87 and 95 days, giving an average of 64.8 days. It was also possible to prove conclusively that the forms described as entameba tetragena might occur exclusively in the stools of men who had ingested entameba histolitica only, and that motile entameba histolitica might occur exclusively in men who had ingested only tetragena forms. Other evidence is given which convincingly proves that tetragena cysts are developed in the life cycle of entameba histolitica. This work is of tremendous importance in that it establishes the pathogenicity of only one type of the ameba found in human stools. It makes a positive diagnosis possible, and it will prevent needless treatment of persons having non-pathogenic ameba in their stools, while affording absolute indications for the treatment of ameba carriers.

CULTIVATION OF NEW PARASITES.

Noguchi (*Journal of Experimental Medicine*, Vol xviii, No. 3) reports briefly the cultivation of the parasite of rabies. The method employed is similar to that used for the cultivation of the relapsing fever spirochete. The culture medium consists of sterile human ascitic fluid containing a fresh piece of sterile rabbit's kidney and covered with paraffin oil. The parasites are described as minute, granular and pleomorphic chromatoid bodies. Other forms, simulating negri bodies were found. These cultures were capable of producing rabies in dogs, rabbits and guinea-pigs.

Fornet (*Berliner Klin. Woch.*, Bd. 50, p. 40) reports the cultivation of the parasite of vaccinia. Raw vaccine lymph is made sterile by shaking with ether; this usually requires about twenty hours of continuous shaking. The ether does not diminish the virulence of the vaccine. After the material has been proved to be sterile for bacteria, the ether is removed by evaporation in an exhausted chamber. The bacteria-free virus is inoculated into a medium composed of one-third beef serum or ascitic fluid and two-thirds sugar bouillon. Growth takes place under anaerobic conditions. Fornet equipped glass flasks containing the medium with valves and secured anaerobic conditions by exhausting the air and replacing with hydrogen repeatedly. The morphology of the parasite is described and illustrated as minute chromatoid bodies which are similar to those described by a long list of observers in vaccine and smallpox pustules. The cultures and sub-cultures were inoculated into calves and produced vaccine vesicles. The name *Microsoma vaccinae* is given.

Noguchi and Cohen (*Journal of Experimental Medicine*, Vol. xviii, No. 5) using the spirochete culture technic, claim to have cultivated an organism from trachoma. The organism cultivated resembles the trachoma bodies found in human lesions, and there is a morphological sequence in the cultures similar to that observed in tissues, namely, initial bodies, lanceolate or ovoid in shape and occurring in pairs, groups and rosettes, and later extremely minute, round or ovoid granules occurring in pairs and masses. Inoculation experiments on monkeys were negative; "a transient papillary conjunctivitis lasting about one week was produced in some cases. Trachoma bodies were not found.

BERI BERI AND SCORBUTUS.

Holst and Frölich (*Zeit. f. Hyg.* Bd. 75, Heft 2) have extended the work which was abstracted in the *Review of Pathology* last year, for the purpose of determining the nature of the anti-scorbutic substances and their preservation. They found that heating destroyed the anti-scorbutic properties of cabbage and milk, while on the other hand, drying in a vacuum did not destroy the anti-scorbutic substances. They also found that acid plant juices preserved their anti-scorbutic property after heating. The anti-scorbutic substances can best be extracted by acid solutions, and these substances may be extracted and preserved in 80% alcohol containing 1% of citric acid. On the exact nature of the anti-scorbutic bodies they have nothing to say.

Vedder and Willliams (*Philippine Journal of Science*, Section B, Vol viii, No. 3) report a large number of experiments to determine the composition, preparation and methods for isolating protective substances against beri beri from rice polishings. They have confirmed Funk's observations by isolating a crystalline base (Funk's vitamine) from rice polishings by Funk's method. This base promptly cured fowls suffering from experimental beri beri or polyneuritis. In addition to Funk's vitamine they have isolated two groups of substances, purine bases and choline-like bases which are capable of partly or wholly protecting fowls fed on polished rice against poly neuritis, but these substances are incapable of curing fowls that have the disease.

Funk (*Ergebnisse der Physiologie*, Vol. xiii). This paper extends through two numbers of this journal and is very comprehensive. It deals chiefly with the nature of beri beri and the substances which prevent the disease—the vitamines. He finds that the vitamine fraction from yeast is made up of three substances; one of the formula $C_{24}H_{19}O_9N_5$; another C_{29} $H_{23}O_9N_5$ and nicotinic acid. From the vitamine fraction of bran, two substances have been isolated, $C_{28}H_{20}O_9N_4$ and nicotinic acid. A table is also given of the composition and value of the various purine, pyrimidin and nuclein derivatives with their allied forms of allantoin and hydrantoin. He finds that those substances were the most active which in composition most nearly resembled vitamines.

STREPTOCOCCUS AND PNEUMOCOCCUS.

Rosenow (*Journal of Infectious Diseases*, Vol. xiv, No. 1, p. 1) describes with convincing detail

the modification of streptococci in cultures, so that ordinary hemolytic streptococci were changed into types identical with streptococcus viridans, which is the type so commonly found in endocarditis cases. Further modification was secured by repeated passage through animals until the cultures had assumed all the characteristics of the pneumococcus. Rosenow believes that he has secured a genuine transmutation from streptococcus to pneumococcus. He has also succeeded in bringing about the reverse process. Every possible immune test was done to control the morphological and cultural changes. The acquisition of new immune properties with change of cultural characteristics is particularly suggestive and important.

While Rosenow's work in many ways is consistent with observed facts and would explain the large number of types of streptococci which can be distinguished culturally, and although it bears every earmark of honest purpose and accuracy, the conclusions are so remarkable that confirmation must be obtained before it will be generally accepted.

Floyd and Wolbach (*Journal of Medical Research*, Vol. xix, No. 3, p. 493) have published a preliminary report of the differentiation of streptococci, based upon a study of 147 cultures. They find, in substantiation of Gordon and Winslow, that it is possible, by cultural tests, to separate streptococci from human sources into six main divisions, and that there is a certain definite relationship between the character of the cultures and the nature of the pathologic process and prognosis. The validity of the grouping was supported by agglutination and complement-fixation tests.

Agglutination and complement fixation tests would indicate that the differences in immune reactions are found with differences in cultural characteristics, and if the latter can be acquired and lost, by change of conditions, it is quite probable that the former may vary accordingly. This is what Rosenow claims to have done experimentally.

ACID AGGLUTINATION OF BACTERIA.

During the last few years, considerable attention has been paid to the acid agglutination of bacteria. Briefly expressed, the term means the precipitation of bacteria from suspensions by various degrees of acidity. The acidity is expressed in terms of hydrogen ionization. The phenomenon may be elicited by inorganic acids and bears some relation to the precipitation of colloid solutions by electrolytes. It was supposed that the method would be of value in the differentiation of bacteria. Recent papers, however, by Sgalitzer (*Zeit. f. Hyg.*, Bd. 76, Vol. 2) and Gillespie (*Journal of Experimental Medicine*, Vol. xix, No. 1) show that the reaction cannot be made specific for different strains of organisms. The paper by Sgalitzer is very comprehensive and deals with a variety of organisms of the colon typhoid and cholera groups. Gillespie's paper concerns the acid agglutination of pneumococci only. The conclusions to be drawn from these papers as to the value of this method is that it will not serve for the identification of organisms for the purposes of diagnosis. It has some value, however, as a method of differentiation between closely allied organisms, in that these may be precipitated by different degrees of acidity.

EXPERIMENTAL NEPHRITIS.

As in previous years, the large proportion of the work of those engaged in experimental pathology has been directed towards the kidney. There has been little change in the character of the work done, and it consists mainly in the study of elimination of certain substances by the kidney, or the retention of others in the blood, after the establishment of renal lesions. The discovery by Underhill (*Journal of Biological Chemistry*, Vol. xii, p. 115) that the subcutaneous injection of sodium tartrate in rabbits and dogs would produce marked degeneration of the tubular epithelium of the kidneys, has stimulated some new work, and a repetition of older work with this form of experimental nephritis.

Underhill, Wells and Goldschmidt (*Journal of Experimental Medicine*, Vol xviii, No. 4) found that sodium tartrate when introduced subcutaneously into rabbits does not appear in the urine, and conclude that the disintegrative influence of the salt upon the tubules is sufficient to account for the failure of the salt to be eliminated. They could find no lesions of the glomeruli. A fairly extensive research by the same authors upon rabbits seems to show that the tartrate acts specifically upon the convoluted tubules of the kidney. To produce a marked effect it is necessary to give the salt subcutaneously; when given by mouth, the lesions are slight. The effect is most marked when fasting animals are used. The administration of alkali in the form of sodium carbonate, acetate or citrate during the state of fasting permits a greater elimination of urinary constituents during tartrate nephritis, and histologically there is some evidence that the alkali modifies the lesion. In a third paper in this same number these authors find that there is a marked diminution in nitrogen elimination, as determined by the effect upon the urine of injecting urea. On the other hand, sodium chloride is rapidly eliminated. In the light of the histological findings, the results are interpreted to mean that chlorides and water are passed through the glomerular mechanism, while urea becomes a urinary constituent by way of the convoluted tubules.

Pearce and Ringer (*Journal of Medical Research*, Vol. xxix, No. 1) noted exudative lesions in the glomeruli in tartrate nephritis in dogs, in addition to the severe lesions of the tubules. Pearce (*Journal of Experimental Medicine*, Vol. xviii, No. 2) makes a further report on the kid-

ney lesions produced by injection of rattlesnake venom, first described by him in 1909. The type of lesion is an acute exudative glomerular process. It was impossible to reproduce the subacute and chronic type of glomerular nephritis as seen in man.

Karsner and Denis (*Journal of Medical Research*, Vol. xix, No. 3) were unable to produce similar lesions in cats by the use of rattlesnake venom. In nephritides produced by hemolytic immune serum, arsenic, diphtheria toxin and tartaric acid, they showed that there is a demonstrable accumulation of nitrogen in the blood. The most marked results were obtained in the case of tartrate nephritis. In another paper, in this same number, they showed that in the subacute or chronic nephritis produced by repeated injections of uranium nitrate, there is an increase in the accumulation of non-protein nitrogen in the blood. However, with the subacute form of nephritis produced by diphtheria toxin injections, there is only a temporary or slight retention of nitrogen.

Other papers dealing with the function of experimentally diseased kidneys are those by Kraus (*Arch. of Internal Medicine*, Vol. xi, p. 613) and Frothingham, Fitz, Folin and Denis (*Arch. of Internal Medicine*, Vol. xii, p. 245). Both papers deal with uranium nephritis. Kraus found that creatinin excretion is diminished and uric acid excretion is increased in acute uranium nitrate nephritis. Creatinin injected in normal dogs is excreted "in toto," but if injected in uranium nitrate nephritis, it causes a decreased excretion of the normally occurring creatinin, uric acid, chlorides and water, and may cause death. The injection of creatinin in subacute uranium nephritis produces no effect.

The latter authors studied the relation between non-protein nitrogen retention and phenolsulphonephthalein excretions in renal uranium nephritis. They found that there was a retention of phenolsulphonephthalein with nitrogen retention so that the diminution of this substance in the urine is an indication of the retention of nitrogen and the degree of nephritis. They make, however, the important observation that the amount of phenolsulphonephthalein in the urine indicates the renal function at the moment, while the amount of non-protein nitrogen and urea in the blood is rather a measure of an accumulated difference between the amounts of waste nitrogen produced in the metabolism and the amount eliminated by the kidneys. The time element, therefore is an important factor in the test.

Rowntree, Fitz and Geraghty (*Arch. of Internal Medicine*, Vol. ii, p. 121) have made an experimental study on dogs to determine the effect of chronic passive congestion on the function of the kidney. The method consisted of applying constricting bands about the renal vein or the vena cava, above the entrance of the veins. The tests, which were adequately controlled, consisted in the study of the elimination of phenolsulphonephthalein, lactose, salt, potassium iodide and water. Lactose excretion is the first to become affected by increasing grades of chronic passive congestion; then excretion of salt and iodide; lastly that of phenolsulphonephthalein. The phenolsulphonephthalein test gives the most reliable information concerning the decrease of renal insufficiency, and decrease in the phenolsulphonephthalein excretion always means severe lesions and usually death. On the other hand, marked delay in the excretion of lactose, iodide and salt may occur with a normal phenolsulphonephthalein output. Lactose is the most delicate test for renal involvement, although it is of least prognostic importance.

Christian and O'Hare (*Journal of Medical Research*, Vol. xxviii, No. 1) describe the glomerular lesions produced by the injection of uranium nitrate. A variety of types are encountered, from the appearance of hyaline droplets in the capillary walls, to thrombus, hemorrhagic exudation, edema and even proliferation of the capillary epithelium.

O'Hare (*Arch. of Internal Medicine*, Vol. xii, No. 1) was unable to produce marked glomerular lesions in the kidneys of dogs, although the tubules were markedly affected. The only glomerular lesion he was able to produce by injections of uranium nitrate was that of hyaline droplet formation in the capillary tufts. Another paper by the same author in this number records experiments where uranium nitrate and Bacilli coli communis were injected into the same animals. The method employed varied in the individual animals. The bacterial cultures and drug in some instances were injected simultaneously, and in others at alternate intervals of varying lengths of time. By this method, chronic lesions were produced which simulate closely those in chronic interstitial nephritis in man.

MacNider (*Journal of Medical Research*, Vol. xxviii, No. 3) studied the effects of different anesthetics upon the kidney in acute uranium nephritis. Dogs were employed and the anesthetics used were mixtures of chloroform and alcohol and ether accompanied by subcutaneous injections of morphin. Anesthetics increased the severity of the changes produced by uranium nitrate. The chloroform-alcohol anesthetic (Gréhant's anesthetic) produced a more deleterious effect than ether and morphin.

Walker and Dawson (*Arch. of Internal Medicine*, Vol. xii. No. 2) have studied the effect of diuretic drugs on the lives of animals with severe acute uranium nitrate nephritis. Rabbits were employed and the results indicate that the diuretic drugs theocin, caffein and potassium acetate shorten the lives of rabbits having severe acute renal uranium nephritis. Spartein sulphate in some instances shortens the life of experimental animals, but is not as detrimental as the other drugs. Water in large amounts was also found to be detrimental in some cases. The

general conclusions are that diuretics are probably contraindicated in acute, severe nephritis in man, because in animals they do shorten life.

Mosenthal and Schlayer (*Deut. Arch. f. Klin. Med.*, Bd. 3, Nos. 3 and 4) have investigated the element of fatigue to diuretics, evidenced by kidneys diseased through chromium and uranium injections. In normal animals they found that repeated injections of salt give no evidence of renal fatigue, either in affecting the volume of urine excreted or the vascular response of the kidney as indicated by changes in the volume, registered by means of the oncometer. Repeated injections of caffein did give evidence of fatigue in that the maximum result was produced by the first injection. Subsequent injections produced a steadily decreasing volume of urine and sodium chloride content. The elimination of sodium chloride simultaneously injected diminished even more rapidly than the volume of urine. The behavior of the kidneys in these two forms of nephritis vary according to the stage. In the early stages of the nephritis produced by chromium, the injection of salt acted as a strong diuretic, while caffein decreased the amount of urine; in uranium nephritis the reverse was true. In chromium nephritis injections of salt acted as a strong diuretic, while caffein decreased the amount of urine, and this action was most marked when the diuresis produced by salt was at its maximum. On the other hand, in uranium nephritis, repeated injections of salt did not produce diuresis, but steadily diminishing amounts of urine, indicating fatigue. Injections of caffein greatly increased the amount of urine from the fatigued kidneys. No explanation is offered for the difference in these results.

Longcope (*Journal of Experimental Medicine*, Vol. xviii, No. 6) finds that the repeated injection of small doses of foreign protein, horse serum and egg white in dogs, cats, rabbits and guinea-pigs that have been sensitized to these products causes injury to the cells of various organs and tissues, with resulting, demonstrable inflammatory reactions. Among these changes, there develops in dogs and rabbits a well marked nephritis affecting the epithelium of the loops of Henle and the collecting tubules, and less frequently of the convoluted tubules. Lesions in the glomeruli are produced in all of the animals used, although these changes were slight and described as congestion and swelling and probably proliferation of the capillary epithelium.

LOS ANGELES OBSTETRICAL SOCIETY.—The Los Angeles Obstetrical Society was inaugurated March 25, 1914, with a membership of forty-seven. The Society is limited to fifty members and there is already a waiting list. The officers are Dr. Titian J. Coffey, president, and Dr. Geo. E. Malsbary, secretary.

Reports of Societies.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

MEETING HELD AT THE BOSTON MEDICAL LIBRARY, JANUARY 7, 1914.

D. H. FULLER, M.D., Secretary.

DR. P. C. KNAPP read a paper entitled,

THE TREATMENT OF CASES OF MENTAL DISORDER IN GENERAL HOSPITALS.*

DISCUSSION.

DR. F. C. RICHARDSON: In the hospital with which I am connected there have been, in addition to the various deliria, not a few cases of true psychosis as well as many borderline conditions. As is the custom in most general hospitals, these cases have been cared for with inadequate means, and, I fear, insufficient knowledge.

An effort has been made to coöperate with the Westborough Hospital for the Insane in an exchange of nurses, so that the general hospital nurse may in a few weeks learn something of tube feeding, simple restraint, etc. It must be said, however, that our hospital executives object to this plan on the ground that nurses from hospitals for the insane are, as a rule, of distinctly inferior grade to those of our training school, and are apt to act as an unfavorable influence. On the other hand, it is found that comparatively few of our general nurses wish to submit to residence in the hospital for the insane. These facts point directly to the necessity for raising the standard of nurses for the care of the insane, and, while it is perhaps foreign to the subject under consideration, I may say that in my opinion this matter demands immediate and serious consideration by those in authority.

The advantages to the patients and to the attendants of keeping borderline and doubtful cases in the general hospital are obvious; and means for the proper care of such should be provided by every superintendent. Such provision is made in the neurological department of the Evans Memorial, where patients are kept under observation until definite decision can be arrived at. Such appliances as the camisole, stout restraining sheets, and equipment for giving the prolonged warm bath, sprays, douches, etc., enable us to feel justified in retaining these patients for a reasonable length of time, and thus saving them, perhaps, from the undesirable suspicion of having once been insane.

Neurologists having service in general hospitals have a right, it seems to me, to demand proper facilities for at least the temporary treatment of such mental cases as come under their care.

DR. W. J. BRICKLEY: There are about 40,000 patients a year, of all diagnoses, treated at the Haymarket Relief Station and, naturally, we receive many mental cases. We examine and treat them all for a time, and dispose of them as their needs require. They are brought there because this general hospital is convenient and the necessary examination can be quickly made. To refuse to ad-

* See page 637.

mit and treat such patients would work a hardship because of the delay in getting them to mental hospitals, which are usually situated at a distance from the center of the community and those citizens and the police who present them to us. The general hospital can assort the types of mental cases into the temporary as alcohol and hysteria, or rapid course cases as delirium tremens and toxemias, and the slower course cases, as general paralysis, dementias, etc. Everybody is willing, even eager, to have such cases enter a general hospital. No time is lost in obtaining a correct diagnosis and in starting treatment. In Haymarket we have these cases thrust on us and we must care for them. Most of our mental cases are due to the use of alcohol. Thus we have treated about 200 cases of delirium tremens this year. These are very hard problems for a general hospital. Dr. Knapp has spoken of the advantages of hydrotherapy and plenty of attendance. In my place we have no apparatus for hydrotherapy and have a scarcity of attendants. Therefore we do the best we can under the circumstances imposed upon us. I do restrain patients; I do give drugs, and I give enough of either, or both, to get results. Surrounded as our hospital is by busy streets, any patient who passed through our doors would be lost in thirty seconds. We have no extensive grounds with surrounding walls. Yet we have had only two patients escape and one who broke a leg by jumping from a window,—these during the past three years. This means eternal vigilance.

I know that hydrotherapy and individual care, with freedom from restraint, is best for the delirium tremens patient. Especially is restraint bad in the early phases, when the patient is promptly made worse by it; but lacking an adequate equipment, we have to resort to it. I have noticed that the delirium tremens cases that are almost well make good nurses for the sick delirium tremens cases. The convalescent delirium tremens cases are repentant and only too glad to assist in ward work, or in quieting and watching the delirious ones. In fact, they, being dull witted, are more patient than some orderlies would be. Thus the convalescents have the benefit of some simple employment, the sick are benefited and the hospital expense is cut down. This last leads me to a new phase of the subject. Dr. Knapp is a visiting physician and treats or orders treatment. The executive of the hospital is the one who must furnish the means of treatment. The executive cannot grant the demands of the visiting physician, at times. These mental cases, more especially the acute manias, are costly to treat. They are destructive and require a larger nursing force, etc.; they are a nuisance and a menace in a general ward. It is the executive who has to prevent or to explain the escape or injury of these mental cases,—not the visiting physician. As an executive as well as a treating physician, I know whereof I speak, when I assure you that the mental cases are the worst class to treat in a general hospital. None the less, I believe it to be the duty of the general hospital to receive and care for, temporarily, the sudden onset mental case. I believe that they should be under the care of neurologists; that, should they remain mental, they should stay in a general hospital only a short time,—weeks.

DR. J. J. THOMAS: I have very little to add to the interesting paper that Dr. Knapp has given us tonight, except to corroborate what he has said; and my experience with the service, during the half year in which it has been in my charge since it was established, has not differed essentially from what he has told us. The excited cases, which, of course, are the most difficult to handle with the facilities at our disposal, have not been a large proportion of the mental cases which have come to us. By a fortunate chance, what accidents have happened during my term of service have been upon other services than mine,—medical or surgical. By the use of hot packs and extra nurses, which the administration has always given on request, we have overcome some of the deficiencies of facilities. After all, however, these excited cases have been a small number of the whole, and I consider much more important the care of other cases, where the symptoms were distinctly mental, and the making possible, by this continued observation, the proper disposal of these cases. Many have recovered in a short time in the wards, either entirely, or so that they could be sent to the care of their relatives; others have been committed and still others sent to institutions like Tewksbury. Without this opportunity for study, I feel sure that many of these cases would not have been handled as well as we were able to do it. Other cases which were committed, I feel certain, could not have been sent to hospitals for the insane, if it had not been for the relations which were established with the relatives while the patients were at the hospital on the neurological service. So, though this service was not established as a psychiatric clinic, and is not primarily a psychiatric clinic, to this day it has justified its existence by the service it has been able to give in this class of cases alone.

DR. E. S. ABBOT: I am glad Dr. Knapp emphasized so strongly the fact that it is necessary for the physician in charge of these mental cases to know how to treat them. Neither the general physician nor the house officers do know. During my four years' service in an executive capacity at the Boston City Hospital I saw several cases literally done to death by bromides and other sedatives. When I tried to remonstrate, I was looked on as not really knowing what I was talking about. I do not see how the general practitioner can know any better. Almost all the text-books on general medicine recommend or at least suggest sedatives in case mental symptoms of any sort arise. The medical student is taught that way, and so he practices.

In the delirious cases, especially delirium tremens, the patient has been taking poor care of himself; he has been eating too little, and though he has been drinking, his water intake has not been sufficient, and he has usually neglected his bowels. He is suffering, therefore, from semi-starvation, lack of food and water, he has a toxemia, and his gastro-intestinal tract is irritated. What does he need? Abundant water, simple abundant food, flushing out of the bowels. He does not need an additional toxin—bromides, etc.,—which he must eliminate. The deliria of acute infectious diseases are similar, probably due to the exhaustion and the toxemia from bacterial poisons. It seems to me quite irrational to add a toxin to the body already suffering from toxemia, merely for the relief of one symptom, and that not a fundamental or important one.

A word as to the amount of food and water needed. Most of these cases get far too little. We need to make sure that they get a sufficient

number of calories. Some years ago I looked up the food values of the diet we were giving at McLean to tube-fed patients. I was rather surprised at the difference on different wards. The calories varied from 2900 to over 4000 a day. The amount of liquid was pretty uniform,—72 oz. a day. The average stomach can hold without regurgitating about 24 oz., so we put the requisite number of calories into three daily feedings of that amount. I think the 72 oz. of liquid is about the minimum that patients can get along on. The need of water was well illustrated by a case we had some twenty years ago. He was confused and was rapidly exhausting,—he might have been considered a case of Bell's mania in the older days,—but his color was high, and an examination of the blood showed over 6,000,000 reds and 115% of hemoglobin. That meant that he was drying up, desiccating. His improvement was remarkably rapid when he was given enemas of water to retain, and was fed by tube, with consequent reduction in red cell count and hemoglobin. We are apt to overlook the water intake in the confused or delirious patient, but it is highly important.

DR. A. W. STEARNS: I have had the good fortune to have worked under Dr. Knapp at the Boston City Hospital and more recently have been at the Psychopathic Hospital, and I can say that the ideals for which he has been striving are identical with those which have, I think, been realized at the Psychopathic Hospital.

DR. E. S. BOLAND: The Boston City Hospital is fortunate in having the services of such men as Drs. Knapp and Thomas to care for these cases which are sure to turn up in the wards and outpatient department of every large hospital. The results are brilliant in spite of the lack of a special ward and trained nursing. For the visiting staff, internes, and nurses such acute mental cases have an invaluable educational importance, but their presence in the common wards is a sore trial to other patients. For the ordinary sick, injured, or post-operative case the ordinary ward is not a bed of roses, and if they are to have the added infliction of a jimjam or epileptic in adjoining beds, they too might want to "take to the woods." Therefore, unless the City Hospital can devote a separate ward to the service, I protest against the reception and care of such patients in the wards.

DR. KNAPP in closing, said he may have had luck in dealing with the executive department of the hospital, but he regretted that Dr. McCollum was unable to be present and tell how much the executive department had suffered in at least half of the last four years from his complaints and persistence in keeping patients before committing them. He had not meant to be understood that a hydrotherapeutic plant and a suitable psychiatric ward were undesirable,—they were, of course, a very great help,—but the idea of having mental cases in the hospital was really contrary to the rules, and it had not been thought best to call attention too strongly to the subject, by urging a special ward. Without these advantages he had managed to get along without much trouble. As to keeping patients who were actually insane in the hospital, instead of sending them to a hospital for the insane he had been guided by circumstances. If a patient seemed to be improving rather rapidly, despite the disadvantages of the hospital, he kept him. If a patient had to be tube fed or if he were very violent, as in epileptic mania, he was naturally committed in a few days. It was obviously a bad thing for a sane patient to be in the ward with noisy and delirious cases, and a ward with better facilities for isolation was most desirable. He agreed fully with Drs. Abbott and Tuttle that these cases had been often badly treated in years past. Not only had there been excessive use of restraint and of drugs, but there had also been a superstition that the alcoholic patient must have alcohol to prevent the development of delirium tremens. Time and again had he seen alcoholic patients in the wards in the medical and surgical services—oftener in the medical than in the surgical,—where he had in vain urged cutting off alcohol absolutely, feeding the patient as much as possible, and flushing him out thoroughly. The alcohol would be kept up,—and the patient died.

Book Reviews.

Structure and Inflammation of the Heart Valve Tissue. By PROFESSOR DR. PAUL GRAWITZ, With five photographic tables. Berlin: Richard Schoetz. 1914.

In this monograph, from the institute of pathologic anatomy at the University of Greifswald, the author believes he has demonstrated, by cell cultures *in vitro*, that the small round cells of inflammatory tissue are not wandering hematogenous elements, but are derived from the cells of the inflamed tissue. In endocarditis there is no invasion of new cells, but a defensive cell metamorphosis analogous to that seen in the normal development of heart valve tissue. The work is admirably illustrated by twelve photomicrographic figures.

The Intervertebral Foramen. By HAROLD SWANBERG. Chicago: Scientific Publishing Company. 1914.

This monograph, described in its sub-title as "an atlas and histologic description of an intervertebral foramen and its adjacent parts," consists of a series of 16 admirable full page plates, with descriptive text, illustrating a study of the first thoracic intervertebral foramen of a cat. It is not, however, primarily, a study in anatomy or in comparative anatomy. Indeed, the purpose of the work is best indicated in the introductory note by Dr. Harris E. Santee: "Mr. Swanberg," he says, "shows by actual sections the exact relations of the first dorsal nerve at the intervertebral foramen. A study of his work will help to determine whether compression of the nerves at this point is likely to occur; and whether, therefore, there is substantial ground for the doctrine that such compression is the immediate cause of all or of a considerable number of pathologic conditions." Apparently the author believes that such compression is unlikely, or at all events very infrequent.

Diseases of the Rectum and Pelvic Colon. By MARTIN L. BODKIN, M.D., New York, rectal surgeon, St. Mary's Hospital, the Williamsburgh Hospital and the Howard Orphan Asylum; late rectal surgeon, Bushwick Hospital. Illustrations specially drawn by Francis A. Deck. New York: E. B. Treat and Company, 241-3 West 23d Street. 1913.

An admirable small handbook of four hundred pages with about one hundred illustrations which are, without exception, very good and a distinct help to the reader. The writer has endeavored to master "the relationship of proctology to the many ailments generally treated by the regular practitioner" and presents his views in the plainest and most direct language. An examination of the book shows that he has well attained this purpose. Only modern operative technic is outlined.

The book is a safe and interesting guide to the treatment of rectal and colonic diseases.

Clinical Surgical Diagnosis. For Students and Practitioners. By F. DE QUERVAIN, professor of surgery and director of the surgical clinic at the University of Basle. With 510 illustrations and 4 plates. Translated from the fourth edition by J. SNOWMAN, M.D. New York: William Wood and Company. 1913.

The author's name is well known to all who follow the progress of surgery of the foreign clinics. He is a man of wide experience and his work is characterized by accuracy of observation and of technic, and by excellent results. In the preface of his book he tells us that it is the outcome of years of association with students as a teacher, and with medical practitioners at consultations. It is concerned entirely with diagnosis, which includes not only the most recent diagnostic methods, but also some of the best of the earlier methods which are sometimes in danger of being forgotten today. Throughout, the book begins with symptoms and progresses towards conclusions and cites a very large number of actual cases; histories are produced in a few lines. He is enthusiastic about differential diagnosis, but says, "Diagnosis is not to be made for its own sake, but as a means to cure," and warns against loss of time while refinements of diagnosis are being investigated. Illustrations, with rare exception, are his own. They are very numerous and admirable, whether they appear as half tones, as diagrams, as x-ray plates, or as colored full-page illustrations. Indeed, the volume is the most entirely satisfactorily illustrated book which we have seen in months. The arrangement is on the anatomical basis.

The book is divided into six parts:—

1. Surgical Diseases of the Head.
2. Surgical Diseases of the Neck.
3. Surgical Diseases of the Thorax.
4. Surgical Diseases of the Abdominal and Pelvic Viscera.
5. Surgical Diseases of the Pelvis and Spinal Column.
6. Surgical Diseases of the Extremities.

Throughout the book, characteristics of accuracy in observation, condensation of symptoms, and logical reasoning, are everywhere in evidence. We have not yet discovered a condition of any importance which has been omitted, nor one which is considered to unnecessary length.

Indeed, the book seems to be entirely without obvious fault or omissions and may cordially be recommended as a most admirable and interesting text-book on surgical diagnosis.

Diagnostic Methods. By HERBERT THOMAS BROOKS, A.B., M.D. Second edition. Revised and rewrittten. St. Louis: C. V. Mosby Company. 1914.

This volume is sufficiently described by its sub-title as "a guide for history taking, making of routine physical examinations and the usual laboratory tests necessary for students in clinical pathology, hospital internes and practicing physicians." In this second edition, a chapter has been added on Schwarz's complement fixation test for gonorrhea.

A Manual of Operative Surgery. With Surgical Anatomy and Surface Markings. By DUNCAN C. L. FITZWILLIAMS, M.D., Ch.M., F.R.C.S., Eng.; F.R.C.S., Edin., surgeon in charge of out-patients, St. Mary's Hospital; senior assistant surgeon to Paddington Green Children's Hospital; lecturer on clinical surgery and joint lecturer on operative surgery, St. Mary's Hospital Medical School. New York: William Wood and Company. 1913.

A small book of four hundred and fifty pages "written for the instruction of the apprentice and to help the journeyman craftsman of our profession." The elementary teaching is derived from that received both at Edinburgh and London, crystallized by a long experience of coaching for the higher examinations. It is not easy to say just what ends this volume is intended to meet. It is a little larger than Treves' hand-book and very much smaller than Treves' Operative Surgery, or the Operative Surgery of Beckham. It is illustrated with a large number of wood-cuts, on the whole very good. It is at least half concerned with the more or less old fashioned method of operations on arteries and on bones. These are given at times in

somewhat unnecessary detail, while farther on the complicated operative technic of stomach and intestines is dismissed rather briefly. It is, no doubt, a good hand-book for students, but is not, in the reviewer's judgment, in any way superior to two or three hand-books already in existence, notably that of Treves, to which reference has already been made. For this reason, it cannot be enthusiastically recommended.

Gunshot Injuries. How They are Inflicted. Their Complications and Treatment. By COLONEL LOUIS A. LAGARDE, United States Army Medical Corps (Retired); late commandant and professor of military surgery, United States Army Medical School; professor of military surgery, medical department, N. Y. University, etc. Prepared under the direction of the Surgeon-General United States Army and published by authority of the Secretary of War. New York: William Wood and Company. 1914.

Dr. Lagarde's book, a volume of convenient size, and of four hundred pages, must be accepted as the present authority upon gunshot wounds. We will say at the beginning that it is well bound and clearly printed and illustrated by a large number of pictures and diagrams, almost all of which are entirely new and which are distinctly good both as technical reproductions, and as supplements to the text. In his preface, Dr. Lagarde says that as far as possible, "I have presented the characteristic feature of wounds by the old armament in preantiseptic times, and compared these with the results of gunshot injuries by modern arms in the Spanish-American, Anglo-Boer, Russo-Japanese and Turko-Balkan Wars, and have also availed myself of the character of wounds by firearms in civil life, and their results as compared to similar wounds in the military service. Like observations have also been made to a less extent on wounds by different kinds of rifles, pistols and revolvers on animals, experimentally and in the hunt." He also includes a chapter on medico-legal phases of gunshot wounds; lectures in civil and military medical schools form the basis of the book. Chapters have been revised in the office of the chief of ordnance, and surgeon-general; the volume may, therefore, be accepted as official from the viewpoint of the medical department of the United States. There are fourteen chapters beginning with definitions, followed with characteristic symptoms and treatment of wounds in general, and then a half dozen chapters of special wounds,—head, chest, abdomen, etc. An index completes the volume.

It is somewhat disconcerting to discover in reading the chapter on gunshot wounds of the abdomen, that the latest authority seems a trifle in doubt as to the advisabiilty of immediate operation on abdominal gunshot wounds, even in civil life; most of us have considered that indication was absolute even though the wound was more than twenty-four hours old, and it is surprising to find that so high an authority as Dr. Lagarde seems to have some doubt in the matter. There can certainly be no possible doubt that the earlier the operation, the better the patient's chances. The volume may cordially be recommended to every surgeon interested in this important surgical subject.

The Surgical Clinics of John B. Murphy, M.D. October and December, 1913.

The October number of these always interesting surgical magazines contains, besides a well illustrated article on hernia, Dr. Murphy's views upon appendicitis, including, of course, his sequence of symptoms and his differential diagnosis. There is also a talk on cancer by Dr. W. L. Rodman, of Philadelphia; an article on joint affections, Hirschsprung's Disease, besides a series of interesting individual cases.

The December number has a very interesting article on Dr. Murphy's method of producing artificial pneumothorax by injection of nitrogen, with a brief historical survey of the subject. Also, two students' clinics given at the opening of the school year illustrating Dr. Murphy's method of instruction; an article upon cholelithiasis and pyonephrosis; a number of bone cases and a list of cases operated on and demonstrated by Dr. Murphy during the week of the Clinical Congress of Surgeons, Nov. 10 to 15, 1913, in Chicago. This formidable list includes one hundred and forty-nine individual cases, covering apparently almost the entire field of surgery, showing an unusually large number of bone cases.

The Clinics continue to be invariably suggestive, whether one agrees with Dr. Murphy's views or not.

Pyorrhea Alveolaris. By FRIEDRICH HECKER, B.Sc., D.D.S., A.M., M.D. Illustrated. St. Louis: C. V. Mosby Company. 1913.

The purpose of this book is to expound its author's theory of *pyorrhea alveolaris*. He believes it to be a general infection, which may be due to various bacterial organisms, with local manifestation in the alveolar process, gum, and peridental membrane. He classifies eleven different varieties of pyorrhea and describes nine species of bacteria which may be its cause. The essence of his treatment is bacteriologic determination of the cause, followed by the preparation and administration of a suitable autogenous vaccine. Whatever the ultimate value of his theory, its exposition constitutes a useful contribution to the literature of the subject.

THE BOSTON

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MEDICAL INSPECTION OF IMMIGRANTS.

Owing to the recent agitation concerning immigration, the timely subject in this number will bear careful reading. A review of the Immigration Service annual reports show that the most important function of the immigration inspection lies in the medical examination. If an alien is sound in body and mind he is not likely to do much harm. A careful appraisal of our human imports then is a serious matter and one to require thought. Doubtless more aliens are held and appeals taken for medical reasons, directly or indirectly, than any other.

Dr. Nute has had a broad experience in immigration work and a chance to see all sides, having been stationed on the Canadian border, Ellis Island, N. Y., and at the port of Boston. He shows that from the earliest times undesirables have been attracted to this country; that as communities grew restriction followed just as naturally against the alien human being as the alien goods in the market of trade. Among the early adventurers were persons sent to America to serve out penal offences, to escape prosecution, and persons suffering from the Wanderlust. Among the latter were many types that undoubtedly today would be recognized as mental defectives. Later on those who had acquired settlement, having defective relatives, were naturally anxious to have the defective relative at hand, more particularly so when American institutions gained the reputation of dealing more kindly with the inmates than the home asylums.

It is important to understand that it is only since 1903 that financial penalty has been placed upon the steamship companies in addition to returning the alien to the port of embarkation of his home town. Also that there is always the appeal, hence the chance of a good gamble, as the ship has to return to Europe in the natural course of events. It is only since 1907 that the feeble-minded have been mandatorily restricted. Microscopical evidence must be present to certify certain conditions, as tuberculosis, gonorrhea, favus, ringworm, etc. Any physician thus can understand how many incipient tuberculous persons may be admitted. Tuberculosis in the meaning of the law refers only to the lungs, genito-urinary, and intestinal tracts. Persons suffering from tuberculosis of the bones, joints, skin, glands, etc., may be landed. In fact, persons with pulmonary tuberculosis can be landed according to certain departmental decisions.

The immigration law, like most other laws, has for nearly every rule an exception, and the alien with money and influence may utilize it to his advantage. The doctor never admits an alien, neither does he ever exclude one; that is the function of the immigration officials.

Those who have travelled can readily realize the difficulties of cabin inspection, which often has to be made after dark, with poor light, and even in daylight in cold and stormy weather some place has to be sought that may not delay the ship or passengers. To do this without delaying traffic, without putting passengers to inconvenience, passengers that often are nervous, tired and irritable after a long journey, who resent being asked personal questions, certainly requires tact.

Observation has taught these examiners a great deal both in a knowledge of human nature and the practical recognition of diseased conditions. To the visitor the spectacular line work seems to be about all there is, but he rarely follows behind the scenes and learns what happens to those who turned into the detention rooms. The hardest work is often between ships, when cases have to be carefully recorded, after due examination that carries with it the hard work of any hospital examining rooms. The mental examination may readily be seen to be a different matter than any institution has to face. Here the examiner must pick out the defectives from the mixed stream flowing past. After picking out a suspect, the doctor receives no aid

from the alien's relatives or friends. Instead, all sorts of pressure will be brought to bear to discredit the examiner.

During the past year the work at Boston has markedly increased. New lines have entered, but the type of immigrant has changed. Not many years ago most of Boston's immigrants came from Northern Europe and the British Isles. Today southern and eastern Europeans predominate and emigration is beginning from Turkey in Asia and Persia.

Boston is sadly in need of a proper immigrant station, both for protection of the public and in fairness to the detained immigrant. The present quarters are inadequate in every way. It does not require much of a rush of traffic to fill it to overflowing and cause many to be detained on ship board until such time as room can be made by either landing or deporting those detained on Long Wharf. It should be kept in mind that detained aliens are not felons, but human beings waiting to prove their right to land, or waiting the sailing of the ship to return them to their homes. Boston is fortunate in having a well trained medical staff, but the best carpenter cannot build much of a house with a jack knife, and it is only due to the vigilance of these doctors that serious outbreaks of diseases have not occurred.

As a result of much injudicious talk on the part of some of the newspapers and magazines, there has been built a false situation, either by those that do not understand or those that are prejudiced against restriction.

If every charitable institution, prison, or hospital supported in any part by public funds, would report to the Immigration Service or in an annual report every inmate who is a public charge or who is seeking free aid, the taxpayers might learn something not hitherto realized.

There is only one reason for restricting immigration, and that is the protection of American institutions. There are many reasons for laxity, such as cheap labor, foreign commercial companies' traffic products, and a cheap vote easily controlled.

The feeble-minded problem is one of the most serious, for it is more open to dispute, and less likely than the insane to become a public charge. Many forms of insanity are curable, and at least usually recognizable; but the feeble-minded are the more dangerous, as they never play the normal in life's competition and often go for years or life unrecognized.

The best remedy is honest enforcement of the law,—make every public office holder seeking to land a defective alien enter his name as a sponsor in the public records, more authority and better facilities for the medical department, a better division of work so that efficiency may not be diminished by speed, even if more medical officers are required, and lastly a clearer understanding on the part of the public that has to pay the bill.

Every alien should be required to show the United States that he is clearly and beyond a doubt entitled to land in this country, instead of requiring the United States constantly to be on the defensive.

IMPORTANT MEETINGS IN NEW YORK.

SEVERAL important surgical and medical meetings have been held in New York during the past fortnight.

The annual meeting of the American Surgical Association was held in New York on April 9, 10, and 11. At the sessions on the first day addresses were made by Dr. William J. Mayo, of Rochester, Minn.; Dr. James E. Moore, of Minneapolis, Minn.; Dr. A. G. Gerster, of New York; and Dr. George W. Crile, of Cleveland, Ohio. On April 10, Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, reported a series of experimental operations on dogs, in which the great vessels at the base of the heart were clamped and the heart action stopped for two or three minutes to enable surgical procedures on the cardiac valves. In a series of 12 dogs, thus treated only 2 died, the remainder being perfectly well at the end of four months.

Other speakers were Professor Robert Proust of Paris, Dr. George E. Armstrong of Montreal, Dr. Fred T. Murphy of St. Louis, Dr. Howard Lilienthal of New York, Dr. James G. Mumford and Dr. Samuel Robinson of Clifton Springs, N. Y., Dr. Willy Meyer of New York, Dr. James E. Thompson of Galveston, Dr. Joseph Ransohoff of Cincinnati, O., Dr. A. J. K. MacKenzie of Portland, Ore., Dr. Charles H. Mayo and Dr. E. H. Beckman of Rochester, Minn., and Dr. John P. Murphy of Chicago.

The annual meetings of several other societies were held at the New York Academy of Medicine at the same time as that of the American Surgical Association. On April 9, the

Society of Sanitary and Moral Prophylaxis discussed the control of medical charlatans. At the meeting of the pediatric section, Dr. John Lovett Morse, of Boston, discussed the clinical and sociologic aspects of pertussis. In the evening of April 10 the American Society for the Control of Cancer held a public meeting, at which Dr. William J. Mayo made the opening address. Dr. J. Collins Warren, of Boston, reported the work of the Harvard Cancer Commission.

At the closing session of the American Surgical Association on April 11, papers were read by Dr. Richard Sparmann of Vienna, Dr. Robert Abbe of New York, Dr. Kenneth A. J. MacKenzie, and Dr. J. M. T. Finney, of Baltimore. Rochester, Minn., was selected as the next place of meeting, and the following officers were elected for the ensuing year:—

President, Dr. George E. Armstrong, Montreal; vice-presidents, Dr. Lewis S. Pitcher, Brooklyn, and Dr. Frank E. Bunts, Cleveland; secretary, Dr. Robert G. Le Conte, Philadelphia; treasurer, Dr. Charles L. Gibson, New York.

On April 13 the fourth triennial convention of the International Surgical Association was opened in New York at Hotel Astor. There were addresses by Surg.-Gen. Gorgas of the United States Army; Dr. W. J. Mayo; Prof. Charles Williams, chairman of the international committee; Prof. A. DePage president of the congress; and Dr. Lewis L. McArthur, chairman of the American committee.

The afternoon session was devoted to the reading and discussion of papers on amputation. Papers were read by Dr. Witzel of Düsseldorf, Dr. Geci of Pisa, Dr. Durand of Lyons, Dr. Razzi of Vienna and Dr. Binnie of Kansas City.

The subjects discussed at the remaining sessions of the convention were:—

1—"Gastric and Duodenal Ulcers," by De Quervain of Basel, Hartman of Paris, Mayo of Rochester, Minn., Moynihan of Leeds, and Payn of Königsberg.

2—"Grafts and Transplantations," by Morestin of Paris, Villard of Lyons, Ulmann of Vienna, Lexer of Jena, and Alexis Carrel of New York.

At the concluding session on April 15, it was voted that the fifth convention be held at Paris in September, 1917. The Association was organized and held its first meeting at Bruxelles in 1905, and the conventions of 1908 and 1911 were also held in that city.

During the week following the convention in New York, many members of the Association have made excursions to Baltimore, Boston, Buffalo, Chicago, Philadelphia, Rochester, Minn., and Washington.

AMERICAN POSTURE LEAGUE.

Official announcement was made on April 2, of the incorporation at Albany of the American Posture League, a national body formed to improve human health and efficiency, through interesting the public in correct physical posture and the improvement of conditions affecting it.

The new organization is concerned with the sitting and standing position of children in schools and of adults in shops, offices, factories and elsewhere. It hopes to effect a more general use of scientific and healthful principles in seating accommodations for working purposes and for public audience rooms and vehicles.

"Correct standing posture is defined briefly as one in which the different segments of the body,—head and neck, chest, and abdomen,—are balanced vertically one upon the other, so that the weight is borne mainly by the bony framework, and a minimum of strain or effort is required of the muscles and ligaments. In this posture, under normal conditions, the organic functions,—respiration, circulation, digestion, etc.,—are performed with least mechanical obstruction and with the greatest efficiency.

"Many conditions of school, factory, personal and public environment exert a molding influence upon the posture of the body. Those conditions inhere largely in furniture and clothing, in habit posture, changes in position and occupation, rest conditions and related matters.

"Good chest development cannot be expected of a boy when the shape of his school seat and the cut of his coat force him for many hours each day into faulty postures. Thousands of children who carry heavy loads of school books are forced into distortions of posture that in all but the most robust must have a serious effect on health and development. Round shoulders are to be expected in a child whose clothing is supported without proper regard for the anatomy and mechanics of the shoulder."

No organized attempt to standardize these various conditions has hitherto been made. Individual orthopedic surgeons, and in a few instances special commissions, have attempted improvements, but the skill and judgment of

the parts have never been combined in united effort. A great field of hygiene and preventive medicine is ready for cultivation, and the American Posture League seems peculiarly fitted to enter it, since it includes in its membershp leading orthopedic surgeons, physical trainers and educators who have specialized on these subjects for years.

"The educational work of the League will be conducted largely by means of illustrated bulletins which it will issue at intervals, each covering some particular phase of the subject. Thus, industrial conditions will be treated in bulletins that will take up the standing occupations, with information on correct standing; how to rest while standing in postures not harmful; foot gear, and habit postures of the feet for such occupations. Similar matters will be treated for the sitting occupations. In several industrial lines the coöperation of the League has already been enlisted, notably for shop girls and motormen. School conditions will have a special series of bulletins, for which much practical, helpful material has been gathered. For general, personal hygiene, bulletins will be issued for physical educators, physicians and others interested. The League hopes eventually to place in the hands of such workers information as to articles, especially in furniture and clothing, that meet scientific standards in regard to posture.

"Lantern slides and lecture outlines for the various conditions mentioned are being prepared, numerous requests for such being on file.

"By all of these means the League will make an earnest effort to popularize strong, rather than weak, standing and sitting postures, and to create an intelligent sentiment in favor of right conditions affecting them."

The League owes its inception to its President, Miss Jessie H. Bancroft, assistant director of physical training in the public schools of New York City. On its board of directors are Dr. Frederick R. Green, of Chicago, secretary of the council on Health and Public Instruction of the American Posture Association; Dr. Joel E. Goldthwait of Boston, ex-president of the American Orthopedic Association; Dr. R. Tait McKenzie, the well known sculptor, who is a director of the physical education department of the University of Pennsylvania; Dr. Henry Ling Taylor, professor of orthopedic surgery in the New York Post-Graduate Medical School; Dr. Thomas A. Storey, professor of hygiene and physical instruction in the College of New York; Dr. S. Josephine Baker, director of the Department of Child Hygiene, New York City Board of Health; Dr. Eliza M. Mosher, of Brooklyn; Dr. Eleonora Everhard, of Dayton, Ohio; Dr. William H. Burnham, of Worcester, Mass., and Dr. E. G. Brackett of Boston.

MEDICAL LEGISLATION. THE BAGSHAW VACCINATION BILL.

In the issue of the JOURNAL for April 2 (p. 559) we published a communication from Dr. George W. Gay on "Antivaccination and the Legislature." In spite of the protest of the Massachusetts Medical Society, which he represented, and of the profession at large, the Bagshaw bill (House No. 1018) to which he referred, was last week passed by the State Senate. As Dr. Gay pointed out, this bill is virtually "an entering wedge for the repeal of all laws relating to vaccination." As it now stands, it provides that "any child or person who has rached the age at which attendance at school is permitted or required, and who is otherwise eligible for enrollment, who presents a written statement, signed by either a parent or guardian, if such child or person be a minor, or by himself if the person has reached the age of twenty-one, which declares that such parent or guardian or person is opposed to vaccination, shall not, as a condition precedent to admission to the public schools, be required to submit to vaccination, and shall be allowed to attend the public schools, except at the time of a threatened or actual outbreak of smallpox, when the school board shall temporarily debar such child or person from the public schools."

Conscientious objection to vaccination has for some years been legally tolerated in Great Britain, with the inevitable result that smallpox, though still infrequent, is far more widely prevalent in that country than, for instance, in Germany, where compulsory vaccination is enforced. In another column of this issue of the JOURNAL we print a description of two recent epidemics of smallpox in communities not universally protected by vaccination. Such epidemics will infallibly occur in Massachusetts if any appreciable number of children or other persons are allowed to remain unvaccinated. To be sure, only the unvaccinated will be infected and die; but the expense, loss, and industrial and eco-

nomic disturbance must be shared and borne by all.

The Bagshaw bill has not yet been passed by the House, so that there is still a possibility that it may not become law. That it may not do so, is the earnest desire of all physicians and other sensible persons in the community.

MEDICAL NOTES.

Bubonic Plague in Havana.—In recent issues of the Journal we have recorded the occurrence of several cases of bubonic plague at Havana. Two new cases of this disease were discovered in that city on April 11 and another on April 12, making a total of 5 then under care in hospital. Three blocks of houses in the infected district were closed, and the residents ordered to vacate by the sanitary department. By order of Dr. Juan Guiteras, director of sanitation, 12 blocks in the commercial district were also closed for thorough deratization. Report from Havana on April 14 states that two more cases of bubonic plague have been discovered in the city, making a total of 7.

A Declining Welsh Death-Rate.—Statistics recently published indicate that in the ancient town of Pwllheli in Wales the total mortality has steadily declined for the past 35 years. In the decade ending in 1888, the death-rate was 21.7 per 1000 inhabitants; in that ending in 1904 it was 18.8; in the period 1905-12 it was 17.05; and in 1912 it was only 9.45.

Walsh Radium Bill.—Among the measures now pending before the national senate is the Walsh radium bill, which aims to safeguard the radium bearing lands of this country from private exploitation. In its amended form it provides for "a prior right of purchase by the Government on all radium ores taken from lands located after the passage of the act. It also provides for a Government owned and operated plant for the reduction of radium ores and the manufacture of the various radium salts employed therapeutically. The Bureau of Mines already has perfected a process of extraction and is prepared to begin radium making immediately."

If government control of radium production be desirable, the national legislature has already lost much valuable time in establishing it, since many claims are being occupied, over which the United States can never exercise the jurisdiction given it by the bill.

A Prolific Centenarian.—Mrs. Pauline Porrell, of Sanford, Me., who died on April 12, is said to have been born in September, 1813. She is survived by eight children, 49 grandchildren, and over 80 great-grandchildren.

BOSTON AND NEW ENGLAND.

Typhus Fever at Providence.—Report from Providence, R. I., states that on April 15, 3 cases of typhus fever were discovered among Greek immigrants aboard the steamer *Madonna* recently arrived from Mediterranean ports. The patients were taken to New York for detention.

Mount Sinai Hospital, Boston.—The recently published twelfth annual report of the Mount Sinai Hospital, Boston, records the work and progress of that institution for the calendar year 1913. During this period 24,324 treatments were given in the various departments, and 339 obstetric patients were attended in their home. All the departments are much handicapped in their activities by lack of room. The dental department has been closed. The plan for a Jewish Hospital has been postponed until after a new dispensary building has been erected.

Massachusetts School for Feeble-Minded.—The recently published sixty-ninth annual report of the trustees of the Massachusetts School for the Feeble-Minded at Waltham, records the work and progress of that institution for the year ended Nov. 30, 1913. At the close of that period there were 1335 inmates of the school at Waverley and 292 in the farm colony at Templeton. The report contains an admirable statement of the classification and method of training and instruction. The principal present needs of the institution are two new cottages, a visitors' and recreation building, a steel water tower, and a cottage for 15 additional patients at Templeton.

New Contagious Building at Boston City Hospital.—It is announced that work is soon to begin on the new contagious disease building

of the Boston City Hospital, for which an appropriation of $297,000 was made last summer. The site is on Massachusetts Avenue, opposite the main hospital, purchased by the city in 1910. The new building, which is to relieve the present overcrowded condition of the South Department, will accommodate 200 patients, each in a separate room or cubicle, many of the partitions being of glass. This idea of construction was originally adapted from the contagious hospital at Walthamstow, England.

According to the plans, the new building will be of six stories, of which the main floor, that above the high basement, shall be arranged as an isolation ward, with a room for each patient, and all rooms opening on the open-air outside veranda or gallery, which will be used for the open-air treatment of patients. The four floors above will be used for patients convalescent from scarlet fever. The detention ward will accommodate fifty patients, but the entire building will have a normal capacity of two hundred.

OPENING OF THE CHILDREN'S HOSPITAL.—The new buildings of the Children's Hospital, Boston, were officially opened on April 15, with addresses by President Lowell, Dean Bradford, and Mayor Curley. About 2000 invited guests were present. A full description of the new buildings was published in the issue of the JOURNAL for April 2.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending April 14, 1914: Diphtheria, 34; scarlatina, 112, of which 20 were non-residents; typhoid fever, 5, of which 1 was non-resident; measles, 93, of which 2 were non-residents; tuberculosis, 62, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 17.78.

NEW YORK.

STATE HOSPITAL FOR CRIPPLED AND DEFORMED.—The recently published thirteenth annual report of the New York State Hospital for the Care of Crippled and Deformed Children, located at West Haverstraw, Rockland County, records the work of that institution for the year ended Sept. 30, 1913. During this period 101 orthopedic patients were treated in the hospital wards, with 2 deaths, and 126 in the out-door department. An industrial school is maintained in conjunction with the hospital, and had an average daily attendance last year of 55 pupils.

ADIRONDACK COTTAGE SANITARIUM.—The recently published twenty-ninth annual report of the Adirondack Cottage Sanitarium at Saranac Lake records the work and progress of that institution for the year ended Oct. 31, 1913. During this period 327 patients were treated, of whom 35 were discharged apparently cured, and only 2 died. The appended ninth medical supplement presents a statistic study of cases. In the treatment, both rest in bed, graded exercises, and artificial pneumothorax have been employed. The principal present needs of the institution are a new laundry, increased bed accommodation, two new small cottages, and sleeping-out porches on several of the older cottages.

MERCANTILE ESTABLISHMENTS MAY HAVE TO BE QUARANTINED.—Two hundred cases of smallpox were discovered in Toledo during the months of December, January and February. Of the entire number of sufferers, but one had been vaccinated, and that one was vaccinated thirty years ago. The story of the Toledo epidemic is the story of hundreds of localized epidemics the world over. An epidemic of equal severity would give to New York City seventy-five hundred cases of smallpox in three months, or thirty thousand cases in a year. Such an epidemic would be a calamity to the people and would be ruinous to the city's trade.

The Department of Health is determined that a smallpox epidemic shall not occur in New York. It has asked the people to protect themselves and, by protecting themselves, to protect their neighbors and to save the city from disaster. Many thousands have responded, but the city is not yet free from danger, and the department is now obliged to issue the following announcement:—

NOTICE TO EMPLOYERS.

Employers of labor are expected to have their employees vaccinated.

Notice is hereby given that in case of smallpox developing in any place of employment, the Department of Health will put such place under quarantine.

MARCH DEATH-RATES.—The weekly reports of the Health Department show that the mortality

sented an annual death-rate of 16.42, as against 15.34 in February, and 16.59 in March, 1913. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from measles increased from 13.25 in February to 17.5 in March; the weekly average from whooping-cough, from 4.25 to 5.75; from diphtheria and croup, from 44 to 46; from influenza, from 13 to 22.75; from epidemic cerebrospinal meningitis, from 3.75 to 4.5; from pulmonary tuberculosis, from 191.25 to 209; from acute bronchitis, from 15.24 to 19; from pneumonia, from 160.75 to 197; from broncho-pneumonia, from 115 to 145.5; from apoplexy and softening of the brain, from 25.24 to 28.5; from diarrheal diseases under five years, from 30.75 to 33.25; from appendicitis and typhilitis, from 14.75 to 16.25; and from Bright's disease and acute nephritis, from 123 to 126. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever declined from 4.25 to 2.5; from scarlet fever, from 16.25 to 13.5; from organic heart diseases, from 249 to 238; from hernia and intestinal obstruction, from 13.5 to 10.5; and from cirrhosis of the liver, from 20 to 18.25.

Veto of Colgate Bill.—Governor Fielder of New Jersey, yielding to the solicitation of the anti-vivisectionists, on April 13 vetoed the Colgate bill, enabling the Rockefeller Institute to establish a branch near New Brunswick, which was passed by the legislature; and this he did in spite of the fact that among those who appeared in favor of the bill were Dr. Simon Flexner of the institute; Dr. J. T. Lipman, director of the experiment station at New Brunswick; and Dr. D. C. English, editor of the *Journal of the Medical Society of New Jersey*, and that special stress was laid on the benefit which the farmers of the state would derive from the institute's studies of diseases of animals.

Veto of the Blauvelt Bills.—Governor Glynn has vetoed the two Blauvelt bills, one amending the Criminal Code in relation to pleas of insanity, and the other the penal law relative to the responsibility of incompetent persons; both of which had the backing of the State Bar Association and the Society of Medical Jurisprudence. With the vetoes he filed a memorandum, a portion of which is as follows: "The purpose of these two bills is to create a new plea, 'Guilty, but insane,' available for defendants charged with crime, and to enact a new legal definition of the term 'insanity'. . . While both bills indicate a sincere attempt on the part of the persons interested in the subject to substitute something better for existing law, I am constrained to the opinion that the subject is one which will require further investigation and discussion before the existing law is amended."

Current Literature

Medical Record.

April 4, 1914.

1. Blake, J. A., and Worcester, J. N. *A Method for Plicating Voluminous Cœca.*
2. Chetwood, C. H. *Drainage of the Bladder Following Suprapubic Operations.*
3. Rhein, M. L. *The Dental Aspect of Oral Infection.*
4. Dominguez, F. *A Case of Sporotrichosis with Multiple Localizations—Importance of the X-ray Examination to Determine the Foci.*
5. Williams, E. H. *The Liquor Question in Medicine.*
6. Stern, S. *The Present Status of the Non-Operative Treatment of Benign and Malignant Growths, as Seen at the Clinics Abroad.*
7. Bangs, L. B. *Cicatrix of Bladder Relieved by Fulguration.*
8. Gottheil, W. S., and Saterstein, D. L. *Autoserum Injections in Certain Obstinate Dermatoses.*

New York Medical Journal.

April 4, 1914.

1. Chetwood, C. H. *Modern Technic in Urethral Stricture.*
2. Graham, E. E. *The Advantages and Disadvantages of Quarantining Hospital Wards for Measles.*
3. Benedict, A. L. *Dreams.*
4. Gottheil, W. S. *The Mischief of Free Medical Service.*
5. *Baar, G. *Differential Diagnostic Value of Cyclic Indicanuria in Gastro-intestinal Diseases.*
6. Williams, T. A. *A Contrast in Psychanalysis: Three Cases.*
7. Sinclair, D. A. *A Retrourethral Cystoscopic Guide for External Urethrotomy.*
8. Rosenbaum, G. *Roentgenology of the Intestinal Tract.*
9. Barnes, G. E. *Affective Activity, Emotion, as the Cause of Various Neurasthenic Bodily Diseases.*

5. Baar discusses the results of his studies of indicanuria as a diagnostic aid in gastrointestinal diseases. He believes that every lesion, no matter how simple, of the gastrointestinal mucosa is sufficient to allow enough indol absorption to cause indicanuria. In these cases he advocates testing the twenty-four hour urine daily for one month, using colonic lavage meanwhile to be sure that the indican does not form in the lower colon, and testing the gastric juice for achlorhydria to exclude this possible cause of indicanuria. Indicanuria may be transitory (due to a

temporary lesion or insufficiency of secretion), constant (due to permanent lesions or insufficiency), or cyclic (recurrent). Cyclic indicanuria may be the only positive evidence of gastrointestinal lesions requiring surgical interference, *e.g.*, chronic appendicitis, cholecystitis, duodenal or gastric ulcer.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

APRIL 4, 1914.

1. *CROSSEN, H. S. *Conservative Operative Treatment of Long-Standing Inversion of the Uterus.*
2. *THOMAS, H. B. *Spinal Transplant.*
3. *FOSTER, M. H. *Methods of Examination of Illiterates for Mental Defectiveness.*
4. GEORGE, A. W., and GERBER, I. *The Practical Application of the Roentgen Method to Gastric and Duodenal Diagnosis.*
5. WALLACE, R. *The Surgical Treatment of Spinal Cord Injuries, with Report of Cases.*
6. MONTGOMERY, D. W., and CULVER, G. D. *Eczema Marginatum of the Toes.*
7. BRISTOL, L. D. *Paratyphoid Fever with Report, Including Post-Mortem Examination, of a Fatal Case of the "A" Type.*
8. MCLEAN, F. C., and SELLING, L. *Further Simplification of Quantitative Determination of Chlorids in the Urine.*
9. PLUMMER, W. A., and NEW, G. B. *Tumor of the Middle Cranial Fossa Involving the Gasserian Ganglion.*
10. VIKO, E. *Surgical Treatment of Urethro-Rectal Fistulae.*
11. JAMISON, C. *The Presence in the Urine of Dialyzable Products Reacting to Ninhydrin.*
12. KIMBALL, A. H. *Voluntary Displacement of the Eye.*
13. *ELLIOTT, H. R. *A Case of Infantile Uterus and Appendages, with Result of Treatment.*
14. CALLISON, J. G. *Easily-Prepared Diluting Fluid for Counting Red Cells.*
15. DEAL, D. W. *A Case of Dorsal Dislocation of Proximal Phalanx of Great Toe.*

1. Crossen advocates and describes by text and adequate illustrations the anterior method of splitting the constriction ring of the cervix and reposition of the inverted uterus.

2. Thomas in a defence of Albee's method of spinal transplant for tuberculous spondylitis states that the operation is not a severe one. It shortens the period of treatment. Complicating pulmonary tuberculosis is not a contra-indication in all cases and young patients do better than adults.

3. Foster states that there is no one test for feebleminded cases, but a routine examination of all the mental faculties is required. Physical signs and facial appearances are of but little use in picking out defectives.

13. Elliott cites a case of a woman of twenty-five years who by the use of lutein tablets and massage of an infantile uterus the size of on English walnut later had development of menses, sexual desire and finally became the mother of a healthy child.

[E. H. R.]

JOURNAL OF MEDICAL RESEARCH.

MARCH, 1914.

1. WOLBACH AND HONEIJ. *The Diphtheroid Bacillus from Leprosy Lesions.*
2. *WOLBACH AND BINGER. *The Cultivation of a Free Living Filterable Spirochete. A Preliminary Report.*
3. *WOLBACH AND BINGER. *Notes on a Filterable Spirochete from Fresh Water. Spirocheta Biflexa.*
4. TODD AND WOLBACH. *Concerning the Filterability of Spirocheta Duttoni.*
5. WOLBACH. *The Distribution and Morphology of Spirocheta Duttoni and Spirocheta Kochi in Experimentally Infected Ticks.*
6. HOMANS. *Degeneration of the Islands of Langerhans Associated with Experimental Diabetes in the Cat.*
7. *ROSENAU, FROST AND BRYANT. *A Study of the Market Butter of Boston.*

2. The spirochete cultivated from the filtrate of water collected from the shores of Jamaica Pond by Wolbach and Binger is shown to be filterable. Passage through a fine filter yields evidently a pure culture of the organism which they have called spirocheta elusa. They have been able to cultivate the organism in fluid and upon solid media by means of hay infusion, which seems to promote the growth of this organism. The filterability of spirochetae in general suggests the employment of this means to separate this group from other bacteria, which are generally not able to pass through the filter.

3. The same authors have discovered another and more delicate spirocheta, also filterable from stagnant fresh water. This organism is so actively motile that its curved ends give a peculiar appearance, from which its name has been constructed, *i.e.* spirocheta biflexa.

7. Rosenau, Frost and Bryant have examined twenty-five samples of Boston market butter. They find no relation between the price and its properties of physical or bacteriological purity. They find that the number of bacteria diminishes with the age of butter. This reduction was as high as 96% in six weeks. In six of the twenty-five samples B. coli was isolated, in fourteen streptococci and in two tubercle bacilli. As a conclusion, the authors recommend most strongly the pasteurization of cream intended for butter production. [L. H. S.]

JOURNAL OF INFECTIOUS DISEASES.

JANUARY, 1914.

1. *ROSENOW. *Transmutations within the Streptococcus—Pneumococcus Group.*
2. *CUMMING. *Rabies—Hydrophobia. A Study of Fixed Virus, Determination of the M. L. D., Vaccine Treatment and Immunity Tests.*
3. MCCOY. *Tumors of Ground Squirrels.*
4. *MOORE. *Observations on Antibody Formation in Typhoid.*
5. *ROSENOW. *The Etiology of Acute Rheumatism, Articular and Muscular.*
6. KLIGLER. *Observations on Indol Production by Bacteria of the Colon-Typhoid Group.*
7. STEINHARDT AND LAMBERT. *Studies on the Cultivation of the Virus of Vaccinia.*
8. *BREED. *The Sanitary Significance of Body Cells in Milk.*
9. ROGERS. *The Preparation of Dried Cultures.*
10. NORTH, WHITE AND AVERY. *A Septic Sore Throat Epidemic in Cortland and Homer, N. Y.*
11. *DAVIS. *The Actinomyces-like Granules in Tonsils.*
12. BERRY AND SMEATON. *Comparative Tests of Sputum by the Kimyoun and Ellimass-Erlandsen Methods.*
13. *BERRY. *Tubercle Bacilli in the Blood.*
14. *DICK. *Multiple Arthritis Due to a Friedländer Bacillus.*
15. PAPPENHEIMER AND VON WEDEL. *Observations on a Spontaneous Typhoid-like Epidemic among White Rats.*

1. Rosenow has been able to change cultures of the hemolytic streptococcus into the pneumococcus, Str. viridans and Str. mucosus. Similar changes in reverse order are also reported. Mutations have been demonstrated to be complete in all cultural respects

in many instances. The nature of this variation is so obscure that the author suggests the existence of a premutation stage, because the same strains refuse to yield mutations when placed under apparently identical conditions. The latter seem to be of two varieties—in the first place those which call forth luxuriant growth, and secondly those which are unfavorable to multiplication. The latter appears to force the organism to new and latent energies. He suggests as a graphic classification of this group the fingers of the partially flexed hand. The hemolytic streptococcus is represented by the little finger and the pneumococcus, at the other end by the index finger; the Str. viridans by the middle finger and the streptococcus from rheumatism by the ring finger. The Str. mucosus, having properties of both extremes, is represented by the thumb.

2. Cumming finds a vaccine of rabies, dialyzed against running distilled water, to be more efficient as a prophylactic than others prepared in the ordinary manner. This material will protect against 8 M. L. D. Since it is much stronger, the course of treatment necessary to prevent the disease is much shortened. It has been clearly demonstrated that its use is perfectly safe and that the reaction is inconsiderable.

4. Moore finds that the injection of a single dose of anti-typhoid vaccine in an individual artificially protected three years previously causes a sudden, sharp and prolonged increase of anti-bodies. The curves are very striking, in contrast with those of controls; who were treated in the same manner, but without previous protection. This indicates an immunity, though latent, at least three years after inoculation.

5. Rosenow has isolated from a high percentage of "acute joints" in acute rheumatism three varieties of cocci. These are interchangeable, of low virulence and freely susceptible to phagocytosis. All such organisms he groups under the heading Streptococcus Rheumaticus. The reason for his success in isolation of these organisms depends upon the use of dextrose—ascitic-agar media. Material is mixed with the media while it is still fluid. Then the tubes are "fixed." Growth is found 0.5-1 cm. below the top and 2-3 cm. above the bottom.

8. Breed shows that the cells in milk are polynuclear leucocytes or endothelial cells. The presence of the former is not necessarily due to pus formation, nor the presence of blood in the milk. The leucocytes are extended through the capillaries and are thrown off into the milk much as the lining endothelium of the milk glands is desquamated. Hence the presence of these cells in large numbers is not an indication of milk impurity. The strippings always contain much higher cell counts than does the first part of the milking. There is great variation in cell count in the same cow from day to day and from different quarters of the same udder, as well as from different portions of the same milking.

11. Davis states that the actinomyces-like granules found in the tonsil are in no way related to the ray fungus. They consist chiefly of bacilli, streptococci and spirilla. He even states that there does not appear to be a well authenticated case of primary actinomycosis of the tonsil yet reported.

13. Berry, in line with so many others, has examined the blood of 50 patients suffering from advanced phthisis, for tubercle bacilli. Her efforts have proved fruitless, since she was unable in any instance to demonstrate a simple acid-fast bacillus.

[L. H. S.]

The Lancet.

March 21, 1014.

1. Moultin, C. M. *Hunterian Lecture on the Biology of Tumors.*
2. Elliot, R. H. *The Technic of the Operation of Sclero-Corneal Trephining.*
3. *Adamson, H. G. *On the Nature of Rodent Ulcer; Its Relationship to Epithelioma, Adenoids, Cysticum of Brooks, and to Other Trichoepitheliomata of Benign Nevoid Character; Its Distinction from Malignant Carcinoma.*
4. Williams, L. *Of Arteriosclerosis.*
5. *McCarrison, R. *Etiology of Endemic Cretinism. Congenital Goitre and Congenital Parathyroid Disease; Abstract of Experimental Researches.*
6. Morton, R. *The Suppression of Reverse Current in X-ray Coils.*

3. Adamson believes that rodent ulcer is an affection distinct from true malignant carcinoma, and that it belongs to the class of nevoid growths which include andenoma sebaceum and multiple benign cystic epithelioma. His reasons for this belief he describes in detail presenting several illustrative cases.

5. McCarrison presents further evidence for his belief that the exciting agent or agents of goitre exist in the intestinal tract of sufferers. He describes his experiments on rats to demonstrate this theory. He has found that of the offspring of goitrous parents a small percentage are born cretins, 63% are born with congenital goitre, 32% with congenital parathyroid disease, and 33% with normal thyroid and parathyroid glands. Cretinism and congenital goitre are due to the action of toxic substances, derived from the intestines of the goitrous mother, in the fetal thyroid and parathyroid mechanism. [J. B. H.]

British Medical Journal.

March 21, 1914.

1. Luff, A. P. *The Art of Prescribing.*
2. Collie, J. *The Business Side of Medical Practice.*
3. Binst, R. C. *Medical Etiquette, Ethics and Politics.*
4. Childe, C. P. *Cancer, Public Authorities and the Public.*
5. Pratt, E. F. *Experiences of the National Health Insurance Act.*
6. *Shufflebotham, F. *The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. Lecture IV.*

6. In the fourth Milroy Lecture on the hygiene of coal-mining, Shufflebotham takes up the question of miners' nystagmus, its frequency (about 9% of all coal workers), age at which it occurs, usually not before a miner has worked ten years underground, symptoms such as headache, giddiness, vomiting and nausea, eye symptoms, night blindness and general nervous symptoms. He discusses the physical signs, clonic spasm of the lids, muscular tremor, gait, vision, onset of the disease and its diagnosis. [J. B. H.]

The Indian Medical Gazette.

March, 1914.

1. Rogers, L. *The Emetine and Other Treatment of Amebic Dysentery and Hepatitis, Including Liver Abscess.*
2. Thurston, E. O. *A Series of 101 Cases of Abscess of the Liver.*
3. Newman, E. A. R. *The Operative Treatment of Hepatic Abscess.*
4. Nott, A. H. *Emetine and Liver Abscess.*
5. Munro, D. *Emetine in Amebic Dysentery.*
6. Seal, C. B. *Amebic Dysentery in the Darjeeling District and Its Treatment.*
7. Sandes, J. D. *Treatment of Liver Abscess.*
8. Chaterji, K. K. *Emetine in Hepatitis and Abscesses of the Liver.*
9. Carter-Warkham, R. *Emetine and Ipecacuanha, Their Amebacidal Value in Pathogenic Amebiasis.*

10. WHITMORE, A. *An Experience in the Use of Emetine in the Treatment of Amebic Dysentery.*
11. HOOTON, A. *The Emetine Treatment of Dysentery.*
12. HUDSON, C. T. *Notes on the Employment of Emetine in the Dharwar District.*
13. MADDOCK, E. C. G. *A Note on Three Cases Treated with Emetine.*

EDINBURGH MEDICAL JOURNAL.

MARCH, 1914.

1. SYM, W. G. *Injuries of the Eye.*
2. *FORDYCE, A. D., AND GIBBS, J. H. *The Place of Diet in the Development of Dental Caries and Dyspepsia in Childhood.*
3. ROBERTSON, W. *The Isolation of Scarlet Fever.*
4. *WATSON, D. C. *Manifestations and Treatment of Intestinal Toxemia.*
5. BARBOUR, A. H. F. *The Place of Gynecology in the Medical Curriculum and in General Practice.*
6. FLEMING, R. A. *Three Cases of Beriberi.*

2. This is a short practical article on the diet of young children, with special reference to the prevention of dental caries and dyspepsia. The common causes of these two conditions are (1) the lack of breastfeeding and improper feeding, (2) pap(?)-feeding on weaning, (3) sweets, (4) excess of carbohydrate food, (5) lack of animal food. (Exactly what constitutes "pap" the reviewer is unable to discover.) With these points in view the authors lay out a simple schedule for needs.

4. In his first paper Watson made three great classes of conditions due to intestinal intoxication: (1) a neurasthenic group, (2) rheumatoid arthritis, and (3) a "dyspeptic" group. In this paper he proceeds to illustrate the first group of nuerasthenics, citing many cases and showing some admirable x-ray photographs. Next he shows cases to illustrate the relation between intestinal toxemia and arthritis and shows examples of the good results following operation. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 10. MARCH 10, 1914.

To Celebrate the 60th Birthday of Paul Ehrlich, March 14, 1914.

1. *GENNERICH. *The Results of Salvarsan in the Marine Hospital at Wik.*
2. SCHREIBER, E. *The Treatment of Syphilis by Mercury and Salvarsan.*
3. DREYFUS, G. L. *Three Years' Experience in the Salvarsan Treatment of Tabes and Lues of the Central Nervous System.*
4. *IWASCHENZOFF, G. *Salvarsan, and Lues of the Central Nervous System (Including Tabes Dorsalis).*
5. LEREDDE. *Technic of the Sterilization of Syphilis by Salvarsan.*
6. WECHSELMANN AND EICKE. *The Technic and Results of Subcutaneous Neosalvarsan Injections.*
7. KATZENSTEIN, J. *The Technic and Results of Intravenous Neosalvarsan Injections.*
8. SEYFFARTH, R. *The Technic of Injections of Concentrated Neosalvarsan.*
9. HARDRAT, E. *Syphilitic Reinfection.*
10. LESSER, F. *A Peculiar Case of Syphilitic Reinfection.*
11. PÖHLMANN. *Hypersusceptibility to Drugs.*
12. KIRCHNER, C. *Fracture of the Base of the Skull with Involvement of the Mastoid Process.*
13. ABDERHALDEN, E. *Critical Replies to*
    1. *Deetjen, H., and Fraenkel, E.*
    2. *Flatow, L.*
    3. *Kaemmerer, H., Clausz, M., and Dietrich, K.*
14. PLAUT, F. *Paul Ehrlich's Sixtieth Birthday.*

1. During the past four years Gennerich has followed over 1200 cases of syphilis. These fall into three groups according to the amount of treatment which they received. In the beginning, Gennerich used salvarsan intramuscularly, later intravenously in small doses. Now he considers that large doses of salvarsan intravenously, combined with mercury, represent the best means of treatment.

Gennerich's results are tabulated. He concludes that fresh lues can be aborted by the proper use of salvarsan and mercury, but that in more chronic cases prolonged treatment is necessary since complete sterilization cannot be so easily obtained.

4. Iwaschenzoff reports on 130 cases of syphilis of the central nervous system which he has treated with intravenous injections of salvarsan or neosalvarsan. He believes that in this form of the disease salvarsan is of great therapeutic benefit and that improvement of symptoms occurs in direct relation to the amount of treatment which has been received. In his experience he has found no difference in the results obtained from using salvarsan or neosalvarsan, but advocates at the beginning of the cure repeated small dosage rather than large, single doses. [R. F.]

No. 11. MARCH 17, 1914.

1. V. BEYER, H. *A Method for Joint Extension.*
2. OELLER, H., AND STEPHAN, R. *Clinical Studies with Abderhalden's Dialysis Method. Second Communication: The Serological Diagnosis of Tumors.*
3. PAGENSTECHER, H. E. *Experimental Investigations on the Production of Congenital Anomalies in Animals.*
4. HOFFMANN, M. *Cataract and Its Analogue in Vitro.*
5. V. LINDEN. *Experiments to Demonstrate the Affinity and Toxicity of Copper and Methylene Blue Salts for the Tubercle Bacillus.*
6. *KÄMMERER, H., AND WEGNER, R. N. *The Etiology of Endocarditis Lenta. Micrococcus Flavus as the Productive Agent.*
7. MEIROWSKY. *Studies on the Distribution of Spirochaetae in the System.*
8. VOLPIUS, O. *The Operative Mobilization of Joints.*
9. *DRACHTER, R. *The Diagnosis of Peritonitis in Infants and Children.*
10. FLÖRCKEN, H. *A Clinical Study on the Use of Blood Vessel Wiring.*
11. STRAUCH, A. *Imitation Diseases in Children.*
12. SWART, S. P., AND TERWEN, A. J. L. *The Technic of Abderhalden's Serum Reaction.*
13. BACHAUER. *The Prevention of Diphtheria in the Schools of Augsburg.*
14. KRÜGER. *The Treatment of Hematoma of the Ear.*
15. BLEULER, E. *Crutches or Legs?*
16. STRAUSS, H. *A Simplification of the Method for Estimating Chlorides in Urine.*
17. LIEK, E. *Perineal Prostatectomy.*
18. ZADE. *Do Animals Think?*
19. BRUHN. *Comments on the Thinking Dog.*
20. FLATOW, L. *Abderhalden's Method for the Diagnosis of Pregnancy.*
21. KÄMMERER, H., CLAUSZ, M., AND DIETRICH, K. *Abderhalden's Dialysis Method.*
22. GEBB. *Local Anesthesia in Eye Surgery with Novocain Potassium Sulphate.*

6. Schottmüller has already pointed out that the streptococcus viridans is the cause of the majority of cases of subacute infectious endocarditis. Kämmerer and Wegner report a typical example of this disease in which the micrococcus flavus was obtained in blood culture, and was found, morphologically, on the heart valves at autopsy.

Kämmerer and Wegner recognize that this organism is usually an avirulent saprophyte of the mucous membrane of the mouth and throat but believe that it

became pathogenic in their case, superimposed upon an already damaged endocardium. Their observations are reported because in the literature similar findings are almost unknown, and because Kämmerer and Wegner believe that various organisms will be found more frequently in endocarditis if careful bacteriological studies are made in this group of cases.

9. Acute peritonitis in infants and children is a difficult diagnosis to establish on account of its confusing physical signs and lack of typical history. Drachter has found the following manoeuvre useful: The child's thigh is flexed at the hip, the lower leg is held at right angles and the bottom of the foot is struck sharply. The visceral and parietal layers of the peritoneum are brought together by this position, and the blow will often cause definite manifestations of pain if the peritoneal surfaces are inflamed. Drachter does not consider this sign in any way specific for peritonitis. If it is positive, however, in a questionable case, peritonitis is present; if it is negative the other physical signs must determine the correct diagnosis. [R. F.]

Obituary.

ALLAN FOSTER BARNES, M.D.

Dr. Allan Foster Barnes, of Cambridge, Mass., who died in Boston on April 12, was born in Somerville, Mass., on Oct. 6, 1875. He obtained his preparatory education at the Cambridge Latin School, and received from Harvard University the degree of A.B. in 1898 and that of M.D. in 1902. After his graduation, he served for two years as surgical house officer at the Massachusetts General Hospital. He settled in Cambridge, and in 1905 became the city bacteriologist. In 1911 he was appointed to the visiting staff of the Cambridge Hospital.

Dr. Barnes was a Fellow of The Massachusetts Medical Society, a member of the American Medical Association, of the Boston Medical Library, of the Boston Society of Medical Sciences, of the Cambridge Society for Medical Improvement, and a founder of the Aesculapian Club of Boston. He is survived by his parents and two brothers.

In an obituary notice of Dr. Barnes in the daily press, one of his friends writes of him as follows:—

"To his many friends his loss is irreparable. To him loyalty was a religion. He found and gave great happiness when his day's work was done, and he was with those he loved, and his keen sense of humor, as well as his lovable and cheerful personality, created a happy atmosphere.

"His ability to suppress his own feelings in times of stress, personal suffering or disappointment, was remarkable.

"In literature he cared only for the best, and whatever he undertook, he did conscientiously with his utmost ability. To those who knew him his strength of character, loyalty, self-control, courage and great patience were an inspiring lesson and a noble example."

Miscellany.

THE NEW CHILDREN'S HOSPITAL OF PHILADELPHIA.

The Children's Hospital of Philadelphia was established in November, 1855, by private charitable donation. Its present building, erected in 1867, and several times enlarged, has become quite inadequate; and a new hospital of 150 beds is to be built at a cost of $1,000,000, of which over one-third has already been pledged. Plans have been drawn, and the corner-stone of the new structure was laid in October, 1913.

"The buildings will occupy three sides of a square sixty feet in dimension, leaving a great central court, open to the south, to furnish interior light, air and attractive greenery. The main building will be set back from the sidewalk about fifty feet, with projecting pavilions at the ends for operating and service purposes. This will be the administration building. It will face north, and on either side of it will be the wards, turning the corners to the south, while two interior wards will project into the central court. Down the western side will extend the babies' dispensary and out-patient department, and on the opposite side of the court will be the nurses' home.

"The babies' building will have fifty free beds and a training school for nursery maids, while the out-patient building will contain a dispensary with clinics for sick children, a babies' dispensary, a milk laboratory, and means of studying preventive methods through educational work. There is already established a country branch at Wynnefield, about five miles east of the municipal building of Philadelphia.

"The babies' building will contain a check room, where the baby coaches may be left during the visit, and a waiting room. Suspected cases of communicable maladies are to be sent at once to a special detention room in the basement for examination. A partition will separate the waiting babies into two general classes, those requiring medical treatment and those that are well, but whose mothers have been educated to the desirability of bringing the children each week so as to keep them well. Immediately at hand will be a milk room where mothers may obtain at cost either whole or modified milk. There will be various examination rooms for an immediate separation of the nervous, dental patients and the like who have their own waiting rooms. Whooping cough patients will have a special entrance and exit. The best features of modern treatment are to be provided: X-ray room, rooms for surgical or corrective treatment, a gymnasium, etc. A roof garden will be at the service of patients who require fresh air and sunlight and more careful treatment than they are likely to receive at home."

NON-VACCINATION AND VIRULENT SMALLPOX.

THE weekly report of the United States Public Health Service for Feb. 13 states that there has recently been an outbreak of virulent smallpox at Springdale, Washington County, Arkansas. On Feb. 11 there had been six cases, of which four had terminated fatally. The infection was introduced by a person from Tampico, Mexico.

"These cases and the origin of the infection illustrate the manner in which virulent outbreaks of smallpox in this country have started during recent years. For several years a strain of mild smallpox has existed throughout practically all parts of the country. In no instance, however, has this mild infection been authentically shown to have been the cause of a virulent outbreak. All virulent outbreaks in which the source of the infection has been traced have had their origin in some existing virulent outbreak in this country or have been imported.

"The manner in which the strain of mild smallpox existing in this country remains true to type is illustrated by an outbreak which occurred in New Zealand as the result of infection imported from the United States."

A letter from the district health officer at Auckland on Jan. 7 reported this epidemic as follows:—

"We have recently undergone in New Zealand a fairly widespread epidemic of the smallpox of the mild type which seems to have been prevalent in America during the last twelve years. It appeared simultaneously in Australia, where, among nearly 900 cases no deaths have occurred. In our case the disease has been almost entirely confined to the Maori race, who are peculiarly susceptible to infectious diseases, more especially of the pustular type. The cases among these natives were on the whole much more severe than those among Europeans. In some cases the disease had all the appearance of confluent smallpox, and in a small percentage even proved fatal yet other natives infected from such severe cases might take it in the usual mild form, and there was no evidence that it worked up in virulence permanently to the normal degree of severity. The majority of the cases even in natives, very few of whom were vaccinated, were more like chicken pox so far as severity was concerned.

"We were able to trace the introduction into New Zealand to a party of persons who came from Utah by way of Vancouver in the steamer *Zealandia*, landing here on April 8. One of this party had a pustular disease of mild type while on board the steamer. In all, some 2,000 cases occurred, but owing to the fact that the natives are a wandering people without definite places of abode, and do not notify their cases, and rarely send for a European doctor, accurate statistics are impossible to obtain."

These epidemics, like numerous others that have recently occurred in various parts of the country, point the moral of the great risk to any community from the growth within it of any considerable group of non-vaccinated persons.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the Boston Medical Library, 8 The Fenway, Saturday, April 25, 1914, at 8.15 p. m.

Paper by Dr. Frederick J. Cotton, "Recent Progress In the Treatment of Fractures." Discussion.

Business: Report of the Librarian, Treasurer, etc. Election of Officers.

Refreshments after the meeting.

HORACE D. ARNOLD, M.D., *President.* WALTER C. HOWE, M.D., *Secretary.*

RECENT DEATHS.

DR. CHARLES HUNT PORTER, formerly of Springfield, died at his home in Taunton, April 16, 1914, aged 42 years. He was a graduate of the College of Physicians and Surgeons of Columbia University and a Fellow of The Massachusetts Medical Society.

DR. CHARLES HENRY BROCKWAY, of Worcester, Mass., who died at the Worcester City Hospital of cerebral hemorrhage April 17, 1914, was born in Boston in 1852. He had been a Fellow of The Massachusetts Medical Society since 1874. He was a graduate of the College of Physicians and Surgeons of Columbia University and previous to settling at Worcester in 1888 had practised in Lynn, Mass., and Avon, Pennsylvania. He is survived by his widow, one daughter and one son.

DR. PAYSON JONATHAN FLAGG, a Fellow of The Massachusetts Medical Society, died at his home in Mittineague (West Springfield), Mass., on March 22, 1914, aged 55. He was a graduate of Jefferson Medical College in 1885.

DR. FRANCIS KELLY ROARKE, who died on April 19 at Troy, N. Y., was born in 1869. He was an otologist and rhino-laryngologist, and was not married.

APPOINTMENTS.

Announcement of New appointments on the reorganized staff of St. Elizabeth's Hospital was made on April 19. The entire staff is now composed as follows.

VISITING STAFF.

Dr. John R. Slattery, superintendent and physician-in-chief. *Dr. Thomas F. Harrington*, associate physician-in-chief. *Dr. M. J. Cronin*, physician. *Dr. John W. Lane*, surgeon-in-chief. *Dr. Edward A. Supple*, surgeon. *Dr. Arthur L. Chute*, chief of urological department. *Dr. Thomas F. Broderick*, orthopedic surgeon. *Dr. Thomas F. Green*, obstetrician. *Dr. P. F. Butler*, roentgenologist. *Dr. Andrew F. Downing*, director of laboratory serum diagnosis. *Dr. Henry S. Rowen*, consulting obstetrician.

OUT-PATIENT STAFF.

Medical Department: *Dr. Thomas J. O'Brien, Dr. Felix McGirr, Dr. Leo T. Miles, Dr. John J. Sullivan.* Assistants: *Dr. Francis J. Doherty, Dr. Joseph Macauley.* Surgical Department: *Dr. Arthur H. Crosbie, Dr. Eugene F. McCarthy, Dr. Joseph Stanton, Dr. George F. Keenan.* Assistant: *Dr. Edward J. O'Brien.* Throat Department: *Dr. John J. Brainard, Dr. Edgar M. Holmes, Dr. John F. O'Brien, Dr. Andrew Sullivan.* Gynecological Department: *Dr. Robert Fair, Dr. Thomas J. Scanlan, Dr. Delbert Jackson, Dr. Charles Kickham.* Eye Department: *Dr. Samuel L. McDonald, Dr. Peter Kelleher, Dr. Peter McAdams, Dr. Jeremiah J. Corbett.* Assistant: *Dr. C. J. Lynch.*

Original Articles.

THE ART OF COMPANIONSHIP IN MENTAL NURSING.*

By Henry R. Stedman, M.D., Brookline, Mass.

Just as the "lunatic asylums" of fifty years ago were built throughout as if violent and physically difficult patients were to be their only inmates, so our training schools of today in hospitals for the insane are almost exclusively devoted to instruction in the treatment and management of acute and violent cases and the physically ill.

It is also an important, but generally unrecognized fact,—and old and experienced nurses bear out these statements,—that in but barely a third of the mental and nervous cases to whom the nurse is called will she† find that the technical instruction which she has had in the training school of the hospital for the insane, is of use to her in private work. By technical duties I mean the management and hygiene of the ward, continuous baths, the care of the physically sick, the preparation and serving of food, and the employment of the various measures necessary for dealing with excited and dangerous patients.

It is only in the acute and other severe cases, which form but a small proportion of the mental patients, that these special requirements are called into play, and then the specially trained, fearless and watchful nurse is indeed a godsend to the patient, the physician and the family. The same remark applies to patients in state hospitals. There, apart from the acute and other excited and difficult cases, are hundreds of quiet, semi-sane or convalescent and generally harmless patients who, even if partially demented, are more or less appreciative, for whom such special and skilled nursing is inappropriate and unnecessary.

Consequently, the nurse soon finds on taking up private work that in most cases she has to fall back upon what native common sense, patience, tact, knowledge of human nature and general information she may possess in order to prove acceptable and helpful to her patients. She finds that if she is ever to be the high-grade nurse of her ambition she will be obliged to be nothing short of a companion to her patient,—who is, for example, one of the many mild melancholiacs or psychasthenics or a case of hypomania living at home,—whom she has to persuade and influence so that she will do the things she ought to do, whom she has constantly to reassure, guide and encourage, and for whom she has to do a number of minor offices never suspected in her course at the training school. In short, she has often to fill the rôle of devoted friend and helper, whether or not her efforts are appreciated and responded to by her charge, and to do such work well is often as difficult and trying a task as to deal with a case of acute mental disturbance, although in a far different way.

It is impossible to specify the many and diverse requirements for skilled personal and individual nursing, for it is nursing and of a high type, although such cases have not to be actually handled, bathed, and dressed or, as a rule, physically controlled. Just as it is not easy to put into words exactly what people in general do that makes them congenial and companionable to their personal friends, so it is impossible to give in detail all the qualities and accomplishments which go to the making of the expert companion-nurse. I will not sermonize on the virtues and accomplishments required of the ideal nurse in this line of work, but simply urge the use of the same means in general that we all employ to win our way with others.

In order, however, to emphasize the wide difference there is between individual and hospital nursing in mental diseases, let us run through a few of the daily duties involved in the private work of the expert mental nurse who is alive to her patients' needs. She reads to her charge systematically and often, so far as possible, selecting desirable books and such as would please her when well. She also sees that the patient reads, even training her to read aloud regularly for a definite time each day. Many a silent, partially demented or melancholic patient has been brightened up and improved by thus exercising the disused function of speech. Reading aloud, especially to single patients in state hospitals is so rare an occurrence that some of us can with difficulty recall an instance of it. Of course, the surroundings and the mental condition and lack of intelligence of many patients make this in a large degree impossible, but a fair number of them are not so demented or so ignorant but that they can be reached by such diversion. Some of them have never learned to read and a few do not know how, but more have never acquired the habit of reading. They can and should be encouraged to learn to like it. The teaching of the more demented is advocated and even practiced in one or two advanced hospitals. Is not then the practice of reading an easy and natural way in which to begin or revive the education of some of the less demented? The libraries of our state hospitals, some of them large ones, do not begin to be utilized for patients as they should be or as they are, for example, at the McLean Hospital. Are the books only for a few intelligent patients in the best ward, who have so many

* Read at a Conference on Modern Developments in Mental Nursing at the Boston Psychopathic Hospital, February 16, 1914, being Psychopathic Hospital contribution 1914.3. Previous contribution by Dr. A. Myerson, 1914.2 entitled "Contralateral Arm Reflexes" was published in the *Journal of Nervous and Mental Disease*, February, 1914.

† For convenience the feminine pronoun is used here in speaking of nurses and patients as the traditional nurse is a woman, but our remarks apply equally to the man nurse and his patient.

other things to interest them? The nurse will also utilize the newspapers, not only for the diversion of her patient, but also for her own improvement, knowing that if she keeps herself informed on the current events of the day or week she will increase her capacity for interesting companionship with all her patients.

It is no news to any intelligent person nowadays that systematic occupation goes a great way toward distracting and engrossing a patient's thoughts. It greatly lightens the companion's task. Most all available kinds are helpful, according to the age, strength and sex of the patients, from embroidery and arts and crafts work to wood cutting and chopping, provided it be free from drudgery and is varied and shared in by the nurse. Dr. Eliot tells us, by the way, that nothing brings content of mind like plenty of hard work that is interesting. The advances made in our state hospitals in this direction have done more than anything else to increase the general content of the patients, the quiet of the wards and a less artificial atmosphere generally.

The nurse will also often have to help in a patient's correspondence and to urge her to write to her relatives or friends. To extort every week or so a few lines of her own composition from a patient may be laborious work, but with patience and persistence not infrequently can be developed into a routine accomplishment when desirable, which will be a help to her and a source of satisfaction to her family. On the other hand, the nurse has also to keep a check on injudicious writing on the part of certain patients, the manic and the paranoid, for example, to accomplish which, without antagonizing them, is anything but easy.

The accomplished companion-nurse will also have as a part of her armamentarium some proficiency at games of various kinds, indoor and outdoor. She will begin early to master solitaire and card games of all kinds and be on the alert for new ones. Out-of-door sports she will pick up with various patients, not a few of whom take a certain satisfaction in teaching the nurse the necessary points.

Regular out-of-door exercise she will make interesting and beneficial by knowing the interesting walks to take and can occasionally cultivate in her charge a love of out-of-door life and nature study. She will also be equally vigilant as to rest hours for her patient as a definite part of the undeviating daily routine of work, play and rest by which the day is hourly piecemealed and which it is so important to establish.

Now personal individual care and attention which is lightly regarded by many as merely "making things pleasant for the patient" and dismissed as "frills" is what, in my experience of thirty years of living in intimate daily and hourly association with mental cases of every description, acute and chronic, mild and violent, makes far more than anything else for the best results that are at all possible. Often the less pronounced acute cases are equally susceptible to their influence. It is the old claim made true of the value of individual care and the nearer we can approach it the better and more scientific is our treatment of the case and the greater the benefit to the patient. In short the methods which really count in the treatment of the mental disease are psychic. Personal attention and influence suitably directed is the essential factor—the *sine qua non*—and to magnify the importance of the technical part of mental nursing is to put the cart before the horse.

We do not for a moment lose sight of the indispensable special methods of treatment for the acute, severe and difficult case of mental disease, continuous baths, the various packs, feeding and close and systematic surveillance which are in constant practice by all physicians in mental cases, but maintain that it is only when the patient's mind has reached a stage when it can be appealed to ever so little by means similar to those I have described that the opportunity for improving her condition begins.

How then is the nurse to fit herself for such important individual duties and acquire the training that is so necessary a part of her life work? She must practice on the patients in the wards. Let her begin by singling out a few for daily regular personal and friendly attention, however slight. It is not enough to be generally kind and helpful superficially to the ward-patients as a whole, as many conscientious and faithful nurses are. She should get down closer to the individual patient. Let her ask her now and then about home and family matters. Our advice to her would be: manage to find time to write a letter home for a patient or two or to help them to do it. Unfailingly encourage good work in whatever the patient does. That costs little time. Acquire and show a little genuine friendly interest and less aloofness toward the individual patient than generally prevails in institutions. All this should not be done fitfully but regularly and systematically, keeping in mind that it is not only the kindly and humane thing to do, but that it is an *important part of your training*, and before long you will not only find a way to extend your influence to others, but will be surprised to see the result to the patient and yourself. Finally when a patient leaves the ward ask yourself whether or not you have made of her a grateful friend and remember that every patient-friend that you have gone out of your way to make, means more to you in future usefulness and practical success in *mental* nursing than months of instruction in hydrotherapy, massage, bandaging, etc., necessary and helpful though they are in special cases.

It follows that all possible means should be tried for giving the nurse who is in training

more time than she now has for such important work directly with the patient. A prominent obstacle, as Dr. Frost has pointed out, is the unnecessary amount of time consumed in study and attendance at the school lectures. There is no question that they could be considerably curtailed without any loss of suitable instruction in the branches that have a direct bearing on nursing in mental disease proper and with distinct gain to the patient. The trouble is that in order to offer a course of training that will attract the right sort of applicants, and heaven knows we need them, certain subjects are taught which relate almost exclusively to physical disease and injury which the mental nurse has to cope with but seldom. In order, therefore, to keep a good staff of nurses for purely mental cases we train them in general nursing in a number of branches that, for practical use, are largely foreign to their legitimate work. An all around training is, of course, desirable for any nurse, but it should not be given at the expense of the patient. The mental nurse would suffer no loss of efficiency and have more time to get closer to her patient if such branches as bacteriology, urinalysis, gynecology, obstetrics and much of the anatomy taught were in some cases omitted altogether and in others materially curtailed. This done, it might be possible to substitute with still a good margin of time, a "current-events" class, for example, a lecture or two on the means for diverting the single patient, reports of personal interviews with patients and their domestic and other troubles which might have a bearing on their condition and their future needs, etc. Prizes offered for the best record in individual work have proved helpful in this direction.

We have enumerated on another occasion the many ways in which a resident social worker in each of our state hospitals could be most useful in the direction mentioned. There is great need of more intelligent lay help other than nurses for hospital patients.

Finally, such methods as are here advocated can only be justly questioned after they have been actually taught and tried in our hospitals. When that is done and they are persistently followed and generally extended, better conditions for recovery will obtain, I believe, the wards will take on a more natural atmosphere and greater ease of administration will follow.

DR. W. W. KEEN HONORED.—At the close of the fourth congress of the International Surgical Association, America was honored by the election of Dr. W. W. Keen of Philadelphia as the president of the next congress. Paris was selected as the place for the meeting of the association in 1917.

CERTAIN ASPECTS OF THE MEDICAL HISTORY OF EXOPHTHALMIC GOITRE.*

BY R. FITZ, M.D., BOSTON.

[From the Medical Clinic of the Peter Bent Brigham Hospital, Boston.]

THE names of three men stand out above all others in connection with the medical history of exophthalmic goitre. These names are Caleb Hillier Parry, Robert James Graves and Carl Adolphus von Basedow. All three of these observers lived within fifty years of one another; all three recognized the symptom-complex which bears their names; all three described the disease from entirely different points of view and for entirely different reasons. It is interesting to compare these various authors and to consider what an important influence, seventy-five years ago, environment and training had on medical observation.

Caleb Hillier Parry was born in 1755. His father was a minister in a small English town, but was so well known a scholar throughout England that Johnson tells us his head teemed with knowledge. Parry was an eldest son. He was sent to a good school and from there went to Edinburgh to learn his profession. From his earliest days he was recognized as having manly sense, calmness of temper and philosophical firmness of mind; his genius, his application, his disposition all promised great things. After receiving his degree, he decided to become a general practitioner of medicine and accordingly moved to Bath in 1779.

At that time Bath was the medical centre of the most fashionable English society. Although Mr. Pickwick visited the city after Parry's death, the times had changed but little and the impressions of that astute gentleman are valuable in showing the kind of patients and the kind of life that Parry had to deal with.

Mr. Pickwick tells us that "a visitor in Bath lead a very pleasant existence with perhaps a slight tinge of sameness. Every morning the regular water drinkers met each other in the pump-room, took their quarter of a pint and walked constitutionally. At the afternoon's promenade all the great people and all the morning water-drinkers met in grand assemblage. After this they walked out, or drove out, or were pushed out in bath chairs and met one another again. After this the gentlemen went to the reading rooms and met divisions of the mass. After this they went home. If it were theatre night perhaps they met at the theatre. If it were assembly night they met at the rooms. The ball nights in Bath were moments snatched from Paradise, rendered be-

* A part of this paper was read at a meeting of The Historical Society of the Harvard Medical School on March 3, 1914.

witching by music, beauty, elegance, fashion, etiquette and above all by the absence of tradespeople. In the ball-room and the passages, the hum of many voices and the sound of many feet were perfectly bewildering. Dresses rustled, feathers waved, lights shone and jewels sparkled. Brilliant eyes, lighted up with pleasurable expectation, gleamed from every side; and look where you would some exquisite form glided gracefully through the throng and was no sooner lost than it was replaced by another as dainty and bewitching."

It was in such gay surroundings that Parry began the practice of medicine. At first it was discouraging. "A great part," he wrote, "of the obstacles to the improvement of the science of medicine originates in the habit of self-indulgence, leading persons to the gratification of present appetite, or the removal of present suffering with little or no consideration of the future. A man shall be grossly ignorant of the whole science of medicine, yet if he has a certain degree of assurance, aided by an adequate number of fashionable phrases, with a determined resolution of flattering his patients by an appearance of great zeal and attachment, and by confirming the good opinion which they entertain of their own discernment in the choice of medicine and diet which they most like, that man shall grow popular and rich and become accessory to the daily destruction of his fellow-creatures."

But as time went on Parry became a fashionable doctor in his turn, and it appears that nearly the whole catalogue of British nobility and many of the most distinguished men in the kingdom came to him for advice. He was even acquainted with the King, who accepted a piece of cloth manufactured from some of Parry's sheep and declared that from its excellent quality, he should feel a pride in wearing it.

In his early days Parry acquired the habit of taking full and complete notes on every case which came under his control. In his later years he contented himself with the more useful task of recording such cases as led to the establishment of principles. His writings therefore are based entirely on his own personal observations and cover a large field of subjects. They were not made, however, from the point of view of a teacher or student of medicine, but rather as objective descriptions of what he saw. This is shown by a quotation of his first case of exophthalmic goitre published in his "Posthumous Papers" in 1825.

"ENLARGEMENT OF THE THYROID GLAND IN CONNECTION WITH ENLARGEMENT OR PALPITATION OF THE HEART.

"CASE 1. There is one malady which I have in five cases seen coincident with what appeared to be enlargement of the heart, and which so far as I know, has not been noticed, in that connection, by medical writers. The malady to which I allude is enlargement of the thyroid gland.

"The first case of this coincidence which I witnessed was that of Grace B., a married woman, aged 34, in the month of August, 1786. Six years before this period she caught cold in lying in, and for a month suffered under a very acute rheumatic fever, subsequently to which, she became subject to more or less palpitation of the heart, very much augmented by bodily exercise, and gradually increasing in force and frequency till my attendance, when it was so vehement that each systole of the heart shook the whole thorax. Her pulse was 156 in a minute, very full and hard, alike in both wrists, irregular as to strength, and intermitting at least once in six beats. She had no cough, tendency to fainting, or blueness of the skin, but twice or thrice had been seized in the night with a sense of constriction and difficulty of breathing, which was attended with a spitting of a small quantity of blood. She described herself also as having frequent and violent stitches of pain about the lower part of the sternum.

"About three months after lying in, while she was suckling her child, a lump about the size of a walnut was perceived on the right side of her neck. This continued to enlarge till the period of my attendance, when it occupied both sides of her neck, so as to have reached an enormous size, projecting forwards before the margin of the lower jaw. The part swelled was the thyroid gland. The carotid arteries on each side were greatly distended; the eyes were protruded from their sockets, and the countenance exhibited an appearance of agitation and distress, especially on any muscular exertion, which I have rarely seen equalled. She suffered no pain in her head, but was frequently affected with giddinesss."

Besides his remarks on this condition, there are found among his medical writings careful studies on thoracic affections, abdominal affections and affections of the genito-urinary organs. His two best known monographs are the "Inquiry into the Symptoms and Causes of Syncope Angina called Angina Pectoris," and "The Nature, Cause and Varieties of the Arterial Pulse." He was interested in many other matters as shown by the titles of a few of his agricultural papers which include, "An Account of a Prize Crop of Cabbages." "Tables of the Female Descendents from 100 Yearling Ewes during Twenty years." "Observations on the English Race Horse."

On the whole, Parry was a fine and elevated character, a man of culture and great charm of manner, a tireless student and note taker. Above all he was a practitioner of medicine, writing, in part, because he had scholarly tastes and scholarly upbringing with such a man's love of the pen, and in part, because, as he said, the business of man was not merely to eat, to drink, to sleep, to enjoy sensual pleasures and then to lay himself down to die, but because it was also the business of man to make the world better after him and to give it the benefit of his experience. He died in 1822.

Robert James Graves was born in Dublin in 1797. He, too, was descended from scholarly people and was brought up in a well-to-do household. His father was a senior fellow of Trinity College and Regius Professor of Divinty, Graves, himself, received a careful preliminary education and went to Trinity College. While there, with two exceptions, he obtained the first prize in classics and science at every examination, and received a gold medal on taking his A. B. degree. He studied medicine with equal zeal and industry, thus it may be assumed that he, too, was a youth of unusual promise.

In Ireland, following its union with England, there was a period of mental inactivity throughout the entire country. Ireland's great men had disappeared, her orators and her advocates were no longer heard unless feebly, and her young men were apathetic. Even Dublin felt the effect of this general mental languor according to Thackeray's description. "A handsomer town with fewer people in it, it is impossible to see on a summer's day. In the whole wide square of Stephen's Green, I think there were not more than two nursery maids to keep company with the statue of George I, who rides horseback in the middle of the garden, the horse having his foot up to trot, as if he wanted to go out of town too. Small troops of dirty children (too poor and dirty to have lodgings at Kingstown) were squatting here and there upon the sunshiney steps, the only clients on the thresholds of the professional gentlemen whose names figure on brass-plates on the doors. A stand of lazy carmen, a policeman or two with clinking boot-heels, a couple of moaning beggars leaning against the rails and calling upon the Lord, and a fellow with a toy and book stall were all the population of the Green.

"At the door of the Kildare Street Club, I saw eight gentlemen looking at two boys playing at leap frog; at the door of the University six lazy porters, in jocky caps, were sunning themselves on a bench,—a sort of blue bottle race— and the Bank on the opposite side did not look as if six pence worth of change had been negotiated there during the day. There was a lad pretending to sell umbrellas under the colonnade, almost the only instance of trade going on."

Since there were few resident nobility or gentry, the professors of law and medicine formed the aristocracy of the city. But the Dublin Medical Schools, too, had suffered from the Irish torpor. Their chief attraction was less the characters of their professors or the number of the original works which issued from them, than the circumstance that of all the cities in the British Empire, Dublin was the one in which the greatest supply of dead bodies for dissection could be obtained. Clinical teaching was unknown, and there was little if any anxiety to encourage the individual pupil to learn.

It was in such surroundings that Graves in 1818 received the degree of Bachelor of Medicine from Trinity College. It must be remembered that he was young, keen-minded, and discerning enough to realize that he had not been educated with any degree of thoroughness. Therefore, as he afterward said, he did not begin life as a practitioner without practice, but for the next three years he studied medicine and the ways of teaching medicine in the better known universities of England, Germany, France and Italy. His trip abroad had a profound effect on his entire life. He returned to Dublin, ardent, energetic, filled with a desire to teach, and well trained not only in clinical subjects, but also, in the allied sciences of pathology, physiology and chemistry. He at once established a private school in medicine and was appointed physician to the Meath Hospital. It was here, that Graves delivered his introductory lecture to the students and pointed out the broad principles of medical education which gave him his unique place in the history of medical teaching.

In this lecture Graves took up the methods of instruction which were in vogue in Italy, France and England. In these countries the clinical side of medicine was taught by a system of ward rounds. The instructor walked from bed to bed examining the patients and expressing his opinions in a loud tone of voice so that the whole audience could hear what was going on. Graves' chief objection to this kind of teaching was that however well inclined the student might be, he was never obliged to exercise his own judgment in distinguishing diseases and had no opportunity to try his skill in their cure.

Graves determined to follow out the German method of clinical instruction. According to this, various members of the class were held responsible for the history, the examination, and the treatment of various cases. At ward rounds each student would report his case in the presence of the instructor, who satisfied himself whether all the necessary particulars had been accurately reported by the pupil. After the patients had been examined the professor and his class proceeded to the lecture room. The pupils were examined concerning the nature of the diseases studied, their probable termination, and the most appropriate method of treatment, each man answering only concerning the patients entrusted to his special care. During the examination the student's diagnosis and proposed remedies were submitted to the consideration of the professor who corrected whatever appeared to be erroneous in either. At the conclusion the prescriptions were read by the professor who strictly commented on, and corrected any inaccuracy or inelegance they might contain. The advan-

tages gained by such "practising pupils" seemed too obvious to require comment; being obliged to give reasons for every plan of cure that they proposed, the students became accustomed to a rational and careful investigation of diseases; and enjoying the most important of all advantages—the early correction of their errors—they commenced private practice with a sufficient degree of experience to render them unlikely to commit any serious mistakes. In other words, Graves believed that the hospital was a place to convert theoretical into practical knowledge; a place to observe the symptoms of diseases previously known to students only through the medium of books or lectures; a place to learn the art of recognizing these symptoms and of appreciating their relative importance and value; a place to study their connection with morbid alterations of internal organs; and, finally, a place to become acquainted with the best method of relieving patients by the application of appropriate remedies. This method of instruction was a radical innovation to the Medical Schools of Dublin, but became entirely successful and gave Graves a universal reputation as a teacher. Trousseau says of him, "For many years I have spoken of Graves in my clinical lectures. I recommend the perusal of his work; I entreat those of my pupils who understand English to consider it as their breviary; I say and repeat, that, of all the practical works published in our time, I am acquainted with none more useful, more intellectual."

As a result of his experience as a teacher Graves published his System of Clinical Medicine in 1843, composed of lectures which had previously appeared in the medical papers of the day. The book contained in it Graves opinion on such subjects as nursing, consumption, the treatment of fevers, etc., and included his remarks on exophthalmic goitre.*

In describing the latter disease, Graves mentions that he had lately seen three cases of violent and long-continued palpitations in females, in each of which the same peculiarity presented itself, viz., enlargement of the thyroid gland. The most typical case is given in detail.

"A lady aged 20, became affected with some symptoms which were supposed to be hysterical. This occurred more than two years ago; her health previously had been good. After she had been in this nervous state about three months, it was observed that her pulse had become singularly rapid. This rapidity existed without any apparent cause, and was constant, the pulse being never under 120, and often much higher. She next complained of weakness on exertion, and began to look pale and thin. Thus she continued for a year, but during this time she manifestly lost ground on the whole, the rapidity of the heart's action having never ceased. It was now observed that the eyes assumed a singular appearance, for the eyeballs were apparently enlarged, so that when she slept or tried to shut her eyes, the lids were incapable of closing. When the eyes were open, the white sclerotic could be seen, to a breadth of several lines, all round the cornea.

"In a few months, the action of the heart continuing with increasing violence, a tumor, of a horse-shoe shape, appeared on the front of the throat, and exactly in the situation of the thyroid gland. This was at first soft, but soon attained a greater hardness, though still elastic. From the time it was first observed, it has increased little, if at all, in size, and is now about thrice the natural bulk of the fully developed gland in a female after the age of puberty. It is somewhat larger on the right side than on the left.

"A circumstance well worthy of notice has been observed in this young lady's case, which may serve to throw some light on the nature of this thyroid tumefaction. The circumstance I allude to is, that from an early period of the disease a remarkable disproportion was found to exist between the beats of the radial and the carotid arteries, the pulsation of the former being comparatively feeble, while those of the latter were violent, causing a most evident throbbing of the neck, and accompanied by a loud rustling sound. In about fourteen months the heart presented all the signs of Laennec's passive aneurysm; the tumor in the neck is subject to remarkable variations in size, sometimes diminishing nearly one-half. None of her family have had goitre, nor was she ever in any of the usual localities of the disease."

This description is sufficiently concise and sharp to make one realize that as a lecturer, Graves must have been distinguished by force and clearness of language. This impression is well substantiated by his clinic on the treatment of fevers. "In a patient laboring under fever and a protracted abstinence from food, whose sensibilities are blunted and whose functions are deranged, it is not at all improbable that such a person will not call for food although requiring it; and if you do not press it on him, and give it as a medicine, symptoms like those which arise from starvation in a healthy subject may supervene. You may, perhaps, think it unnecessary to give food, as the patient appears to have no appetite and does not call for it. You might as well think of allowing the urine to accumulate in the bladder because the patient feels no desire to pass it."

The following story illustrates how keenly he felt the truth of what he taught. He was going around the hospital one day and entered the convalescent ward. He began to expatiate on the healthy appearance of some patients who had recovered from severe typhus. "This is all the effect of our good feeding," he exclaimed, "and lest, when I am gone, you may be at a loss for an epitaph for me, let me give you one in three words: 'He fed fevers.'"

During many years Graves enjoyed a large and lucrative practice, and was much sought after as a consultant. Yet it is as a teacher, and not as a practitioner of medicine that he must be remembered. He was a strong man,

* The original paper was published in 1835.

and a bold man, capable of holding friends and enemies. He came to Ireland at a time when medical education in that country was at lowest ebb, yet by his efforts he made the Dublin School universally known, and exercised a great influence on medical teaching in England, France and America. His own words are his best epitome, "If a teacher neglects his duty, if he teaches erroneously, his negligence and his error are multiplied indefinitely by those whom he ought to have better instructed; the scene of his guilt, for it deserves no better name, becomes fearfully enlarged, for there is no country so remote that it may not contribute victims to the incapacity of his pupils. But if, on the contrary, he works with zeal and diligence, a compensation awaits him to which scarcely any member of any profession can attain."

He died in 1853.

Carl Adolphus von Basedow was born in Dessau in 1799. His father was a government councillor and his uncle a distinguished teacher. Thus he, as well as Parry and Graves had the advantages of comfortable surroundings and a good up-bringing. He attended school in his native city but went to Halle University to learn medicine.

The University of Halle was the first of the German universities to be founded on the principle of free research and instruction. The older teaching was based upon the assumption that the truth had already been given, and that instruction had merely to do with its transmission. In Halle, however, it was believed that the truth must be discovered and that it was the duty of a college to qualify and guide the student in this search. Von Basedow fell under such influences.

After graduation in 1821, he moved to Merseburg. The town is one of the oldest and most picturesque in Germany; it is situated on the river Saale, and has always been small and unprogressive. Its most striking features are its cathedral, its town hall and castle. It appears to be a very typical, old-fashioned German village.

Von Basedow practised here until his death. The influence of his early training is well shown by his article on exophthalmic goitre which appeared in 1840, and is the first complete monograph on the subject. It begins by citing all the available literature that Basedow could find. He reports four cases of his own, occurring in three women and a man. All had exophthalmos and goitre, three had frequent pulse, two palpitation. Other symptoms were emaciation, dyspnea, edema, nervousness, diarrhoea and mild sweating.

He explained the exophthalmos as due to hypertrophy of the orbital tissues, "strumous" in the sense of goitrous. While his physiology and conception of the disease differed from the views now held, nevertheless, von Basedow was the first observer to attempt to study exophthalmic goitre as a disease and his article is remarkably complete. He wrote various other monographs on medicine and surgery, none of which are as well known as the one on goitre. He died in 1854 as a result of infecting himself at an autopsy on a case of typhus fever.

It is impossible to study the lives of these three men without feeling the important influence that environment had on their characters. Parry lived in the centre of fashion, and his interests were associated with those of the people with whom he came in contact. He had no university connections to stimulate him. As a result, he developed the tact in handling his patients and the knowledge of men that made him so successful. He was a broad-minded man, well informed about the variety of subjects which interest the educated Englishman who lives in the country but who deals with all classes of people. He was a splendid example of the general practitioner,* 'the flower (such as it is) of our civilization, and one who shared as little as any in the defects of the period, and most notably exhibited the virtues of the race.'

Graves lived in a university town where scholastic success represented the pinnacle of greatness. As a result the practice of medicine became to him of secondary importance. His aim was to improve the conditions for medical education in his own school and elsewhere, and his ambition was to make himself a clinical teacher. By insisting that the most essential part of a student's instruction was obtained at the bedside in close contact with the patient, he showed a far-sighted policy, carried it out, and materially changed the plan of medical teaching in England and America.

Von Basedow lived in a small German town. He was uninfluenced by the cares of a lucrative practice or the responsibilities of a university professorship. He lived his own life as an upright citizen, studying carefully the subjects that interested him, and describing them completely and well It is a pity that more details of his life and character are not known.

Whether exophthalmic goitre be called Parry's disease, or Graves' disease, or Basedow's disease, all three of these physicians deserve places in the history of medicine. It is difficult to find more perfect models of the practitioner of medicine, the teacher of medicine, or the student of medicine.

* R. L. Stevenson: Preface to "Underwoods."

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THE DEMONSTRATION OF GALL-STONES BY THE ROENTGEN RAY.

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AND

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UP TO within the past year, the demonstration of gall-stones upon plates by the Roentgen method has been regarded generally as a rare curiosity. Of late, however, Roentgenologists are learning more and more how to demonstrate these stones, so that the examination may be of definite diagnostic and prognostic value to the practitioner.

We believe that this advance has been peculiarly an American one. Carl Beck showed the first plates of gall-stones at a meeting in New York in 1899.[1] Since then he has devoted considerable energy to a development of the technique of gall-stone Roentgenography. More recently Case[2] and Cole[3] have both published numerous cases of gall-stones.

The practical application of the Roentgen method to gall-stone diagnosis has apparently not spread so rapidly on the other side of the Atlantic. Ewald, in his very recently published monograph on diseases of the liver,[4] states that—"unfortunately radioscopy has, up to the present, given us no reliable data for the recognition of gall-stones. The few cases that have been demonstrated were all rare exceptions of pure calcium stones."

This statement is by no means true as regards the present status of gall-stone diagnosis in this country.

In our own experience we began to find the shadows of gall-stones by accident during the course of the bismuth examinations of the alimentary tract. Gradually the accidental findings became so frequent that we found it advisable to look for gall-stones in every case. At present we have adopted the routine method of examining the gall-bladder region in every patient, before giving the bismuth meal.

Pure cholesterin stones, as is well known, do not have a density differing much from that of the general abdominal contents; therefore they will not interrupt the Roentgen Rays to any appreciable degree, so that their shadows cannot be differentiated. Fortunately however, these pure cholesterin stones are not common,[5] or at least do not cause many chronic disturbances. When the gall-bladder is chronically inflamed with repeated infections, the stones that are deposited have the characteristic lamellae of calcium and bile salts encrusted on the cholesterin core. It is only the calcium admixtures that we can show by the Roentgen Ray. Therefore, the clearness of demonstration of gall-stones upon the plates will be in proportion to the amount of calcium present.

As a rule nearly every case which has symptoms referable to gall-stones will have some calcium.[5] Of course the Roentgen demonstration of gall-stones has not yet reached the position that has already been attained with regard to renal and ureteral calculi. However, at present we believe that with care, and with attention especially directed to the gall-bladder region, gall-stones can be demonstrated in nearly every case where the symptoms have been of long duration, and gall-stones are really present.

In the near future we hope that the certainty of diagnosis will approach that which already has been reached with renal calculi. At any rate, before long it will be possible to state definitely whether there are gall-stones present containing calcium or not.

The technique for the demonstration of gall-stones is very simple. The complicated methods which have been devised for projecting away the liver shadow, etc. are entirely unnecessary. The patient lies upon the table with his face down. The plate is placed under the right hypochondriac region. The maximum of sharp definition is obtained with a very small diaphragm, 1½ inches in diameter, and a very small cylinder placed close down upon the back. It is preferable to use a fairly soft tube with a rapid exposure. It is better not to use intensifying screens, but to use the simple plates as in kidney work.

The gall-stone shadows will vary according to their calcium content. Often there will be a central light area due to the cholesterin core, with a peripheral calcium shadow. (Fig. 1.) Occasionally there may be made out the irregular deposits of calcium corresponding to the lamellated structure. (Fig. 1, stone 2.) At times the shadow will be dense and almost uniform, when there is considerable calcium salt present. (Fig. 2.) As a rule the faceted outlines will



FIG. 1.—Two large faceted gall-stones, in a man weighing nearly 200 pounds. Hepatic flexure adherent to gall-bladder region. (Note the varying density of the ribs, gall-stones, and bismuth.)



FIG. 2.—1. Mass of stones filling gall-bladder.
2. Single stone in cystic duct, near entrance to common duct.

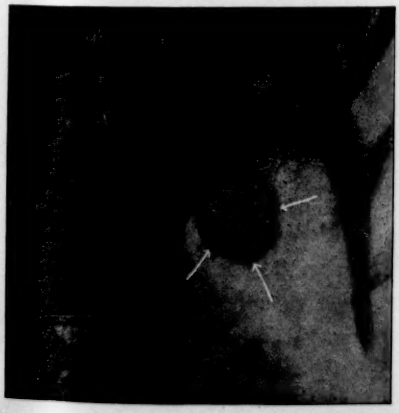


FIG. 3.—Arrows point to one large lamellated gall-stone. Note the deformity of the antrum of the stomach due to pressure from the gall-stone.

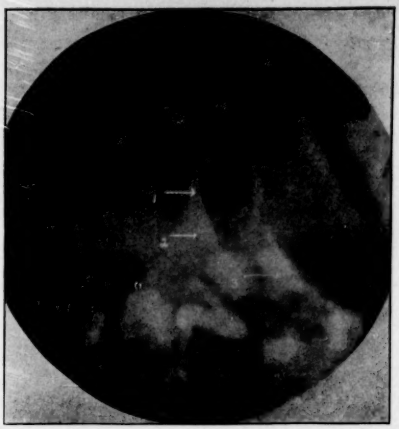


FIG. 4.—1. Large conglomerate mulberry stone, with numerous areas of calcification.
2. Edge of gall-bladder.
3. Edge of liver.



FIG. 5.—1. Mass of nearly forty small gall-stones.
2. Antrum of stomach, demonstrated by fluoroscope to be adherent to gall-bladder region.
3. Pressure effect of gall-bladder upon antrum.



FIG. 6.—Arrow points to mass of ossified rib-cartilage. This was probably the site of an old injury to the cartilage.

be clear, although at times the calcium masses may be circular or irregular. The stones will sometimes be closely packed in a mass, corresponding to the gall-bladder boundaries. At other times the shadows may be more separately scattered throughout the gall-bladder region. When the faceted outlines are distinct, it is easy to tell that there are many stones present. However, when the shadows give the appearance of a single conglomerate mass, one is easily led into error. We have seen essentially the same picture prove in one case (Fig. 4) to be a single conglomerate stone of the mulberry type, and in another case it proved to be a mass of closely packed small stones. (Fig. 5.) The shadows of gall-stones may, in rare instances, be entirely obscured by a very greatly thickened gall-bladder.

In addition to the gall-stones, we are usually able to show other indirect evidences of gall-bladder disease, by the later bismuth examination. These consist of the evidences of adhesions due to pericholecystitis. The duodenum and antrum of the stomach occupy an abnormal right sided position in the sub-hepatic region, and on manipulation appear to be fixed there. (Fig. 5.) The hepatic flexure, or some parts of the proximal transverse colon, may be demonstrated as adherent to the gall-bladder. (Fig. 1.) However, these accessory aids merely mean adhesions in the gall-bladder region. They may be congenital adhesions, or the results of chronic gall-bladder disease without stones. The actual demonstration of the gall-stones themselves establishes the diagnosis without a doubt.

The commonest sources of error in the diagnosis of gall-stones are renal calculi, calcified mesenteric glands, and costo-chondral ossification.

Renal calculi usually cause confusion when we do not find the characteristic light cholesterin cores and faceted outlines, or when we have single or conglomerate stones. The writers have, however, seen renal calculi that showed definitely faceted outlines, and on a single Roentgen plate could easily be interpreted as gall-stones. The differentiation can usually be made by taking similar plates with the patient lying first on his abdomen and then on his back. Gall-stones are nearer the anterior abdominal wall, while renal calculi are nearer the back. Therefore the anterior plates in the case of gall-stones will show the shadows small and sharp, whereas the plates taken on the back show the shadows larger and more blurred. Just the reverse occurs in the case of renal stones; that is, the posterior plates show smaller and sharper shadows than the anterior plates. The shadows of renal calculi usually bear a constant relation to the kidney outline, whereas those of gall-stones may change their relative position with changes in the projection angle.

Calcified mesenteric glands will be found to occupy somewhat different positions in different plates, by manipulating the abdominal contents between exposures. As a rule they are found much lower than the gall-bladder region. Also there will be found very little difference as regards the postero-anterior, or the antero-posterior exposures.

Ossification of the *costal cartilages* may produce a calcium mass simulating a number of gall-stones. (Fig. 6.) On careful observation, however, this mass will be found continuous with the ends of the ribs, and also similar masses will usually be found in the left hyprochondriac region.

In our routine work, gall-stones have been found in cases where their presence was at first entirely unsuspected. Later a careful history has brought out symptoms attributable to them. Again they have been found in cases where the entire attention of the physician had previously been directed to their secondary manifestations in the stomach or bowel. In these cases no symptoms of gall-bladder trouble could ever be elicited. This has been especially true in several cases of anacidity, and one of true achylia, resulting from gall-bladder disease. We therefore believe that a routine examination of the gall-bladder region is of considerable importance as a preliminary to the later bismuth examination of the alimentary tract.

SUMMARY.

The demonstration of gall-stones by the Roentgen Ray has already reached a position in this country that warrants its more general use as a dependable aid to diagnosis.

It is advisable to examine the gall-bladder region for stones prior to every bismuth examination of the alimentary tract.

We believe that gall-stones can be demonstrated by the Roentgen Ray in nearly every case of gall-bladder disease of long standing where stones are really present.

The chief sources of error are renal calculi, calcified mesenteric glands, and costo-chondral ossification. These can be differentiated by proper technique.

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GIFT TO LEONARD HOSPITAL.—Mrs. Russell Sage of New York has signified her intention to give $25,000 to the Leonard Hospital, Troy, provided the residents of that city will raise an additional $40,000.

INTRACRANIAL HÆMORRHAGE IN THE NEWBORN.*

BY ROBERT M. GREEN, M.D., BOSTON.

[From the Clinic of the Boston Lying-in Hospital.]

INTRACRANIAL hæmorrhage in the newborn either may be due to the trauma of labor, natural or instrumental, or may be associated with the disease known as *haemorrhagica neonatorum*. In the former instance, the treatment is purely local; in the latter, the local treatment becomes secondary to that of the general condition. In either case, early recognition of the symptoms is of extreme importance, since any operative treatment, if indicated, must be prompt to be effective. This review of the subject will be illustrated by cases from the clinic of the Boston Lying-in Hospital, for the privilege of observing and reporting which I wish herewith to express my grateful acknowledgment to the Visiting Physician.

Trauma, especially of difficult forceps delivery through a contracted pelvis, has long been recognized as the commonest cause of intracranial hæmorrhage in the newborn. There may be little or no external evidence of injury; the baby usually seems normal in every way; and symptoms of its condition seldom appear before the second day, and sometimes not until the fourth or fifth, probably depending on the amount and rapidity of the hæmorrhage. As a rule the latter is usually venous, and of slow oozing character. The signs, which theoretically should be those of progressive increase of intracranial pressure, are seldom typical, as in an adult, but are often modified into a clinical picture, which, though distinct and definite when once recognized, is not that which *a priori* one would expect.

Abels[1] emphasizes the similarity of this picture to that of traumatic tetanus. He points out, however, that strabismus and nystagmus are often absent in hæmorrhage, and that the extent of the convulsions is seldom as great as in tetanus. In my experience the reflex and motor phenomena are frequently unreliable guides to diagnosis or as localizing signs. The two following cases may serve to indicate the type of clinical picture more often met in traumatic intracranial hæmorrhage due to forceps extraction.

CASE 1. Baby S. (B. L. H. 149-92. No. 16570). Male. Born March 31, 1909, by difficult multiparous high forceps extraction. Weight, 9 lbs. 13 oz. Easily resuscitated. Appeared normal and nursed until 48 hours old, when it began to refuse the breast. Its cry, previously lusty, became feeble and querulous. Physical examination showed marked general pallor of skin and mucous membranes. Face slightly puffy. No bulging of fontanelles. No alteration of reflexes. No external hæmorrhage. Thorax and abdomen normal. The baby was stimulated with heaters and brandy, but died in a few hours without development of further symptoms. Post-mortem examination: The right cheek anterior to the right ear, and the left cheek in the corresponding situation, show a broad purplish area of discoloration. On section, the tissues of the scalp are found infiltrated with a considerable amount of blood-like material. This infiltration is continuous with a similar condition in the subcutaneous tissues of the upper part of the areas of purplish discoloration described above. There is no break in the continuity of the tissues along the sutures, and no bulging of the fontanelles. On opening the skull, a large amount of fluid blood escapes from beneath the dura, and on removing the brain the convexities of the hemispheres are found covered with a rather thick layer of blood-clot. This is situated mainly in the region of the posterior half, but it extends forward laterally as far as the temporal lobe. At the base, there is a slight amount of clot along the crura and over the pons. On section, the brain tissue is not remarkable. The sinuses, as far as can be made out, are intact, and the hæmorrhage is probably due to a break or breaks in the pial vessels. The trunk was not examined.

CASE 2. Baby P. (B. L. H. 152-46. No. 16906). Female. Born August 29, 1909, by difficult forceps extraction through a contracted primiparous pelvic outlet. Weight, 7 lbs. 10 oz. Baby easily resuscitated and cried vigorously. Face considerably traumatized. No cephalhematoma. Nursed well until the fourth day, when it began to refuse the breast, and to develop general pallor and progressive œdema of the right side of the face. Cry feeble and moaning. Physical examination was entirely negative. Lumbar puncture yielded clear fluid. The baby was fed breast milk with a medicine dropper and stimulated with brandy and subpectoral salt solution, but continued to fail, and died, without convulsions, on September 5.

Post-mortem examination: On the right side of the head, the tissues are swollen and show dark reddish discoloration. On section, the subcutaneous tissues are swollen and markedly infiltrated with brownish red, bloody fluid. No fractures of the skull are made out. The sutures are intact. On opening the skull, there is a moderate amount of frank blood-clot resting here and there over the right hemisphere, and a considerable amount of blood-like material in the right middle fossa. This blood is all subdural. No definite laceration of brain-tissue is made out. The sinuses are intact. Trunk: the peritoneal cavity is not remarkable, and the stump of the umbilical cord is in good condition.

It appears from these cases that subdural hæmorrhage of fatal grade may occur without producing the classic signs either of intracranial pressure or of traumatic tetanus. Indeed, I have come to feel, from observation of over a dozen cases, that, given an adequate history, a presumptive diagnosis of intracranial hæmorrhage may be made in any baby that, within a few days of birth, becomes pale, refuses the breast, and shows a peculiar, though slight, facial œdema. This latter sign, presumably due to back pressure from within the skull on superfi-

* Read at a meeting of the Surgical Fortnightly Club on Feb. 24, 1914.

cial veins emptying into the dural sinuses, I have felt to be a sign of considerable importance and value. This presumptive diagnosis may be made even in the absence of nystagmus, bulging of the fontanelles, or reflex modifications. Indeed nystagmus is so often present in babies that for this purpose it seems to me a sign of very little significance. The appearance of any of these, or the onset of convulsions, is of course confirmatory evidence.



Types of Intracranial Hæmorrhage. (Seitz.)

Fig. 1. Intraventricular Hæmorrhages.

Fig. 2. Massive Subdural Supratentorial Hæmorrhage of the Cerebral Convexity.

For further confirmation, lumbar puncture is important, and should generally be done; but even this may fail to yield bloody fluid in the presence of considerable hæmorrhage. Whether it does so or not, probably depends on whether the hæmorrhage is confined to the convexity of the cerebral hemisphere or extends below the tentorium and along the base.

For complete confirmation, aspiration of the subdural space, through a fontanelle or suture, is of supreme value, and should be done in every suspected case, and always before any operative measure is undertaken. This procedure is advocated by Henschen,[2] its originator. It is not only of diagnostic but may be also of therapeutic value. Gilles[3] reports a case cured by "decompressive cranial puncture." The technic is simple. Care must of course be taken not to wound the dural sinuses. Over the vault of the cranium there is abundant room, especially when the subdural space is filled with blood. The needle should be inserted nearly parallel with the surface of the skull, and when entered, if blood is not immediately obtained, may be carefully swept in various directions, not, however, attempting to cross the middle line, on account of the falx. The coronal suture, at the lateral angle of the anterior fontanelle, is the most favorable point for insertion; but exploration may also advantageously be made through the lambdoid suture. If blood be found, as much may be removed as can be made to flow through the needle, depending on the degree of coagulation.

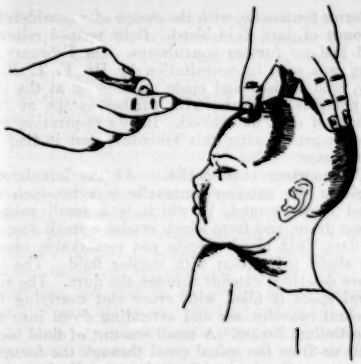


Fig. 3.

Technic of Fontanelle Puncture. (Henschen.)

If a considerable amount of blood can be withdrawn in this manner, it may be wise to wait before instituting further procedures. But if only a small amount be obtained, or if there be no improvement in the baby's condition, immediate decompressive craniotomy is indicated. Of cases thus treated, 17 have thus far been reported, 9 by Cushing[4], 1 by Seitz[5], 1 by Meara and Taylor[6], 1 by Hubbard,[7] 3 by F. T. Murphy,[8] and 2 by Simmons.[9] Of these, 7 have recovered, four of Cushing's cases, 1 of Murphy's and 2 of Simmons's. Torbert,[10] in 1909, reported two cases, both of which, however, died without operation.

The operative technic, as described by Simmons, consists of a transverse skin incision along the coronal suture. The suture itself is then opened and the dura incised, first on one side, then on the other, of the median line. If necessary, the suture incision can later be extended to make an osteoplastic flap, but often mere incision, with insertion of a rubber-tissue wick, affords sufficient drainage. Both of Simmons's cases recovered under this treatment, and it seems that perhaps others have died from the greater shock of a more extensive procedure.

That fatal intercranial hæmorrhage should result from difficult forceps delivery is not surprising; indeed the wonder is that it does not occur more often. But that it should follow easy, normal, even multiparous labor is almost incredible. Yet such is the fact, as is evidenced by the two ensuing cases:

Case 3. Baby L. (B. L. H. 153-32. No. 17257). Female. Born January 30, 1910, after a spontaneous precipitate primiparous labor of 4 hours, 10 minutes, through a slightly justo-minor pelvis. Weight, 6 lbs. 14 oz. Baby easily resuscitated and cried vigorously. Continued well until February 4, when it had two convulsions. Physical examination showed moderate bulging of the anterior fontanelle, but was otherwise negative. A hypodermic needle was inserted into the lateral angle of the

anterior fontanelle, with the escape of a considerable amount of dark fluid blood. Baby seemed relieved and had no further convulsions. On February 5, baby was seen in consultation by Dr. F. T. Murphy, who advised and made an incision at the site of previous puncture, with further escape of two ounces of dark fluid blood. Baby's respiration and color improved after this procedure, but it died an hour later.

Post-mortem examination: At the left lateral angle of the anterior fontanelle is a two-inch incised linear wound, in which is a small rubber-tissue drain, and from which exudes a small amount of dark fluid blood. Scalp not remarkable except for slight infiltration with similar fluid. The cut above described extends through the dura. The subdural space is filled with cruor clot overlying the cerebral convolutions and extending down into the longitudinal fissure. A small amount of fluid blood wells up from the spinal canal through the foramen magnum. Cerebral sinuses intact. Brain otherwise normal in appearance, and on section shows no hæmorrhage into its ventricles or substance. Examination of trunk showed nothing abnormal.

CASE 4. Baby C. (B. L. H. 156-50. No. 17386). Male. Born March 29, 1910, after an easy, normal, multiparous labor of 16 hours, 10 minutes, through a slightly justo-major pelvis. Weight, 9 lbs. 8 oz. Easily resuscitated and cried vigorously. Appeared normal and nursed well until April 1, when it refused the breast. The temperature was 100°, the anterior fontanelle slightly prominent, but physical examination was otherwise negative. That afternoon the temperature rose to 101°, the fontanelle became more prominent, and spasmodic nystagmus developed, but there were no convulsions. The general condition remained good, but on April 2 the baby had a convulsion and died before any treatment could be instituted.

Post-mortem examination: Scalp normal. Fontanelles and sinuses normal. Subdural space contains a small amount of fluid blood, especially on the right side, increasing in quantity towards the posterior part of the brain. The right occipital lobe is largely replaced by a massive currant-jelly clot, about the size of a hen's egg, and homogeneous throughout. The source of this hæmorrhage could not be determined. The remainder of the brain was normal on section. Examination of the trunk showed nothing remarkable, except some minute punctate hæmorrhagic patches in the lungs.

The precipitate labor in the first of these cases may have been a sufficient traumatic factor to explain the hæmorrhage; but in the second there seems no adequate reason to account for it. It is noteworthy that in none of the cases of this series could the source of the bleeding be determined at autopsy. Beneke[11], [12], in 1910. expressed the belief that in the majority of instances the lesion is a laceration of the tentorium. Pott,[13] in 1911, reported 33 autopsies on the newborn, in which tentorial lacerations were found. He describes three types of tear: one in the free edge of the tentorium, one in its superior layer, and a third between the layers. He ascribes them to the tension put on the tentorium by the compression of parturition, which stretches the falx in the direction of the long axis of the skull.

Henschen,[14] in 1912, concurs with Beneke's opinion, but points out that in cases where such lesion is absent the bleeding probably comes from the rupture of veins in the pia. Bauereisen[15] reported two and later[16] nine cases of tentorial laceration. Benthin[17] reported 10 cases, and expressed his belief that in normal deliveries the lesion may be produced by too violent manual compression of the head through the perineum in the effort to save the latter from tearing. Von Herff[18] also reports a case and believes the lesion to be often of this type.

Seitz[19] believes that only in about half the cases is the intracranial hæmorrhage due to tentorial laceration. In some of the others in which the hæmorrhage is intraventricular, instead of subdural, he believes the bleeding is from the veins of the choroid plexus. Eastman[20] has reported such a case, in which there was intraventricular as well as subdural clot. In the remainder, that is in supratentorial hæmorrhages over the cerebral convexity, Seitz believes the source is from lacerations of the superior longitudinal sinus or its tributaries. He believes also that venous stasis and increased fœtal blood-pressure are important determining or predisposing elements in intracranial hæmorrhage of all types.

Finally, it is to be remembered that intracranial hæmorrhage may be merely one localization of the bleeding of *hæmorrhagica neonatorum*, as the following cases illustrate.

CASE 5. Baby B. (B. L. H. 171-176. No. 19245). Male. Born June 24, 1912 after a normal, easy multiparous labor of 13 hours. Weight 9 lbs. 8 oz. Baby easily resuscitated and cried vigorously. Apparently normal except for cephalhematoma below posterior fontanelle. Nursed well until June 28, when it began to refuse the breast and showed marked pallor. On June 29 the baby was listless and very anemic. The hematoma on the back of the head had increased to twice its original size. The pupils were dilated and did not react to light. The left knee jerk was markedly increased. Both hands in position of tetany. Twitching of eyelids and lips, but no true convulsions. On June 30, there appeared small hæmorrhagic spots on the skin under the right axilla, on the left arm and over the middle of the back. Seen in consultation by Dr. Vincent, who injected 10 c.c. of mother's blood subcutaneously into the baby. Four hours later 10 c.c. of blood were similarly injected. The baby showed no improvement, but sank into progressive coma and died on July 4.

Post-mortem examination: There were several c.c.of bloody fluid in the pericardium. Each adrenal was reduced to a single large cyst containing bloody fluid. There is over the occiput a flaccid mass, the size of half a peach, which consists of diffusely infiltrated blood-clot extending forward in the median line to the anterior fontanelle. It lies under the epicranial aponeurosis, covering the squamous portion of the occiput, and not connected with the interior of the cranium. On opening the skull, a

free subdural blood-clot was found overlying the entire right hemisphere and extending along the base into the spinal canal. Source of hæmorrhage not determined.

Case 6. Baby Y. (B. L. H. 172-206. No. 19379.) Female. Born Aug. 22, 1912, after a precipitate multiparous labor of two hours. Weight, 7 lbs. 14½ oz. Baby easily resuscitated and cried vigorously. The mother's four previous pregnancies all terminated in miscarriage, but her Wassermann reaction was negative. The baby nursed well at first, but lost weight steadily. There was slight bleeding from the vagina a few days after birth. On Sept. 2 there was a slight hæmorrhage from the mouth, and on Sept. 3 a bright, profuse hæmorrhage from the cord. There was slight ptosis of the left eyelid, and paresis of left half of the body. Seen in consultation by Dr. Vincent. Anterior fontanelle bulging; lumbar puncture yielded 5 c.c. of blood-stained fluid. Thirty c.c. of blood were taken from the mother's vein and injected subcutaneously near the baby's scapula. There was no improvement, and the baby died on Sept. 4.

Post-mortem examination: Considerable fluid blood oozing from umbilicus, which is open and communicating with the umbilical vein, the stump of the cord being gone. There is slight oozing of bloody fluid from the mouth and nose. On reflection of the scalp, the anterior fontanelle, the sagittal and coronal sutures were seen to be dark and tense, and on incision the subdural space was found to be occupied by a diffuse layer of blood-clot, somewhat thicker on the left hemisphere than on the right, and extending completely around to the base of the skull, and down through the foramen magnum into the spinal canal. Source of hæmorrhage not determined.

It may perhaps be questioned whether the first of these two cases were really one of true hæmorrhagic disease, though it was so considered by Dr. Vincent. The second, however, was undoubtedly so. In both cases, the treatment employed by Dr. Vincent was directed toward relief of the anemia. Even had transfusion been possible, this alone would not have sufficed in the presence of so massive an intracranial effusion. In an ideal case of this type, one might first transfuse to restore the volume of blood and correct the tendency to hæmorrhage, and then aspirate or decompress to relieve the intracranial tension.

Obviously the most important measure in connection with so serious a condition as intracranial hæmorrhage is prophylaxis. In cases associated with hæmorrhagic disease this is manifestly impossible: a slight and otherwise unimportant degree of unavoidable trauma may here act as an inevitable factor in determining the location of an impending hæmorrhage. In normal deliveries one should remember not to compress the head too violently with the hand through the perineum, in the effort to save the latter from tearing. Above all one should, when possible, avoid all difficult or high forceps extractions by doing elective Cæsarean section. This of course requires rare judgment, since it is a matter of great difficulty to tell in advance how easily a given fœtal head may pass through a given pelvis. In weighing arguments for decision, however, due consideration should be taken of the much greater risk of intracranial hæmorrhage in high forceps deliveries, particularly where the fœtal life is a matter of special importance or solicitude.

Doubtless minor grades of intracranial hæmorrhage, from which the baby recovers spontaneously, often occur unrecognized. Of the possible or probable sequels of such non-fatal cases in epilepsy, spastic paralyses, imbecility, or other defects it is not practicable here to speak. In severe cases of intracranial hæmorrhage, the prognosis for life is so grave as to demand prompt recognition and efficient treatment of the condition. In all cases the prospect of complete functional recovery is so uncertain as to demand the most zealous prophylaxis.

While the above paper was in press, I had the opportunity and privilege of seeing at the Boston Lying-in Hospital and operating on the following additional case.

Case 7. Baby K. (No. 20718.) Male. Born March 30, 1914, after a protracted multiparous labor, terminated by low forceps. Weight, 8 lbs., 6½ oz. Baby easily resuscitated and cried vigorously. It seemed healthy at first, but never took its feedings well and lost weight steadily. I first saw the baby on the morning of April 12. At that time it had a pinched, anxious, trismic expression. The arms were spastic and held in a typical position of tetany. The right knee-jerk was exaggerated, the left could not be elicited. The pupils were equally dilated; the eyes showed moderate nystagmus and were generally held directed towards the right. There was marked bulging of the anterior fontanelle. A diagnosis was made of supratentorial intracranial hæmorrhage, probably on the left side, and was confirmed by cranial puncture. Clot was obtained on the left side, and a small amount of bloody fluid on the right. That afternoon, as soon as parental consent could be obtained, the baby was operated on by Dr. Simmons's method. A small amount of clot and a considerable ooze of bloody fluid was obtained from the incision through the left fronto-parietal suture, and a small amount of similar fluid from the right side. Rubber tissue drains were placed into the subdural space on both sides, and the skin wound closed with interrupted horsehair stitches. A moist salt solution dressing and bandage were applied and the baby sent to the ward in poor condition. The bulging of the anterior fontanelle was entirely relieved by this procedure, and the pupils became contracted; but the baby continued to refuse feedings, and died in a few hours. Post-mortem examination showed a moderate supratentorial hæmorrhage, chiefly restricted to the left side, with a small amount of blood on the right side and base, which was apparently due to leakage from above. The source of the hæmorrhage could not be determined.

Though this case differs somewhat in type and duration from those above reported, it illustrates essentially the same principles of diagnosis and treatment. If the condition had

earlier become apparent, operation might possibly have been more successful.

CONCLUSIONS.

1. Intracranial hæmorrhage may occur in the newborn either from the trauma of operative or normal labor or in association with *haemorrhagica neonatorum*.

2. It often does not present the typical clinical picture of increased intracranial pressure.

3. Its presumptive diagnosis depends on early recognition of refusal to nurse, pallor, and slight facial œdema, which may be confirmed by the appearance of more classic signs.

4. Diagnosis may be positively established, and some therapeutic relief afforded, by lumbar puncture (when the hæmorrhage is infratentorial), or by cranial puncture (when the hæmorrhage is over the cerebral convexity).

5. If these measures fail to give relief, operative decompression by craniotomy is indicated.

6. The majority of intracranial hæmorrhages in the newborn are subdural, but intraventricular hæmorrhages may also occur.

7. The source of bleeding may be from laceration of the tentorium, of the choroid plexus, of the longitudinal sinus or of the pial vessels.

8. In cases associated with hæmorrhagic disease preliminary transfusion may be indicated before craniotomy.

9. The gravity of the prognosis demands an enlightened prophylaxis by avoiding all unnecessary occasion for fœtal trauma.

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SOME PRESENT PROBLEMS IN TUBERCULOSIS.*

BY P. C. BARTLETT, M.D.,

Late Superintendent Rutland State Sanatorium.

THE last report of the Boston Association for the relief and control of tuberculosis shows a constant decrease in the number of deaths from tuberculosis during the past five decades. That there has been a decrease is gratifying, but there is still a great deal of work to be done.

* Read at the sixth Massachusetts Conference on Tuberculosis, March 26, 1914.

In this paper I shall briefly discuss the following problems.

First, the number of consumptives in the state and the number of beds available.

Second, the reason for the scarcity of comparatively early diagnosis.

Third, methods to bring about the early discovery of incipient cases.

Fourth, the question of suitable occupations for arrested or partially arrested cases of tuberculosis.

Fifth, the danger of duplication of effort in the various health boards, local societies, etc.

There are at present in Massachusetts approximately ten thousand patients under treatment for tuberculosis, and there are many times this number of people with non-active tubercular foci. We have about 3000 beds in the different sanatoriums and hospitals that can be used for these patients.

There is a considerable number of these cases that do not need hospital or sanatorium care as they can be perfectly well looked after in their own homes. There is still a large number of cases that need hospital care for which we have no provision. Many of these should be taken care of in their own communities, in hospitals built for the advanced type of cases. And when such hospitals are provided one of our present problems will disappear.

There are still altogether too many patients with active disease that are not recognized as tuberculous until their disease is moderately advanced or worse. There are two causes for this delay. First, many patients do not seek advice because of lack of knowledge of their complaint. Second, patients seek advice but their physician delays making a diagnosis because of lack of knowledge of the early symptoms or because of a too hurried examination.

For the first class of cases we must continue our educational campaign and, if possible, discover new methods of bringing before the people the necessity of early diagnosis. Dr. H. L. Barnes, in a recent paper, advocated newspaper advertising to bring the matter before the people and I believe this would help.

For the second class of cases we should perfect ourselves in every way possible to make an early diagnosis and also see that the medical students are given practical instruction in this most important branch of internal medicine. In our zeal to find the early case we should not, however, make a positive diagnosis of clinical tuberculosis without sufficient evidence. There is a distinct Phthisiophobia in the community to be combated and this can only be done by education.

We must recognize the fact that a tuberculous focus has been established in the majority of children and that they will react to a tuberculin test, but show no evidence of clinical tuberculosis. The problem is to prevent them from becoming active infections and to decrease

the number that are exposed to infection in infancy and childhood. The children should be placed in the best environment possible and the cases of apparent poor physical development especially looked after, kept in open air schools or open air rooms, and live in hygienic surroundings. The sociologist says, "Provide an income sufficient to obtain good food and proper housing and there will be fewer cases of tuberculosis."

Another problem which always confronts us is to find suitable employment for the arrested or partially arrested case of the disease. Many patients do better to resume the occupations for which they have been trained rather than to take up some entirely new occupation even if their work is to some extent undesirable, provided they can live a well-regulated, hygienic life when not at work. There are some cases, however, that could be distinctly benefited if they could be trained in some light out-of-door employment or some of the less dangerous of the indoor employments. Last year the legislature of New York passed a bill allowing the municipal hospitals to establish work shops. These work shops are for the production of articles or supplies needed in the institution itself or by any other department of the municipality. This offers one method of training patients in occupations which are frequently better than the one in which they are trained and also starts them at work under the best possible conditions.

There is also a problem of duplication of effort. The local boards of health, the various tuberculous societies and various other health agencies should realize that only through the most complete co-operation can the best results be obtained. Miss Billings, who is employed by the Trustees of Hospitals for Consumptives, is at present doing valuable work in looking up discharged sanatorium cases and in securing the co-operation of the local boards of health and local societies.

Some of the problems, then, that confront the tuberculosis worker are very complex and are bound up with the problems which confront all of the workers in preventive medicine. When we realize that about 80% of all deaths are due to preventable causes, or in other words each one of those deaths is the result of ignorance or carelessness, then we realize that only by the broadest kind of education and the union of all of our sociological, educational, medical and sanitary forces can the preventable diseases be reduced to a minimum.

A LIVING CENTENARIAN.—Mrs. Lydia Dow French, of Roxbury, Mass., is said to have been born on April 21, 1814, at Seabrook, N. H., and celebrated last week her supposed centennial anniversary. She is a widow and has two living daughters. Her health is excellent.

THE TUBERCULOUS CHILD.*

BY CLEAVELAND FLOYD, M.D., BOSTON,

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SINCE the conception of the campaign to suppress tuberculosis was inaugurated three distinct steps have been noticeable in its development. At first the early diagnosis of pulmonary tuberculosis was considered to be the chief aim of most of the effort put forth. The second step has been the effort directed toward an adequate provision for those suffering with the disease in its advanced form, and thirdly, the child as an important factor in the problem has slowly become recognized. Not that the early detection of the disease and provision for it are any less important, but the question of tuberculosis of childhood has become more so.

The tuberculous child is of interest and importance chiefly from these aspects, namely, the source of and the manner in which infection takes place; the extent to which the children of the community are infected, and the influence of tuberculosis acquired in childhood upon later life.

Recent researches in the past ten years have shown that from five to ten per cent. of all cases are due to infection through milk, this type generally showing itself as tuberculosis of the joints, peritoneum or glands.

With the elimination of the tuberculous cow as a source of food this source of disease will be suppressed. Hess, in a striking observation made on infants, found that a few weeks' exposure to tuberculosis gave rise in most instances to the disease. Young children are not found to have as marked a degree of susceptibility as infants and with increasing years the intensity and duration of exposure to tuberculosis must be more marked to give rise to infection. The marked sensibility of the infant makes for a generalized tuberculosis. At an older period, general glandular infection is present, and only as the child moves on toward adolescence is the localized pulmonary infection predominant.

The entrance of the tubercle bacilli into the body takes place in two ways, through the digestive tract and by means of inhalation.

Experimental work on animals has clearly demonstrated that the organism may pass through the intestinal wall, gain access to the glands and reach the root of the lungs.

Lodgment of the bacillus in the tonsils may show subsequent inflammation of the glands of the neck with an extension into the chest.

But while the method of infection may occur from the use of tuberculous milk and the carrying into the mouth of material contaminated with the tubercle bacillus, laboratory and clinical findings still support the view that the great avenue of pulmonary infection is through direct

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inhalation. With the tubercle bacillus finding egress from the body chiefly from the air passages, with these secretions constantly thrown into the air, in a moist or dry state, and with the most susceptible part of the body open to the disease, it is but natural that the pulmonary tissue should be most often involved. The seat of the disease in the child may be the root of the lung and therefore not evident, except as it shows itself in symptoms of general debility.

The extent to which tuberculosis is prevalent among infants and children has been largely determined. Medin found that among 7000 children dying from various diseases, under one year old, 10% showed tuberculosis. This proportion rapidly increases with the increasing age of the child until at 16 years it is very probable,—as shown by laboratory and clinical methods that very few have not become infected to some degree.

The proportion of cases among children who have come in contact with active tuberculosis in the home varies from 29% to 40%. Sachs in Chicago obtained a percentage of 29. In Boston among 1000 children so exposed, 35% showed evidence of pulmonary involvement.

The effect upon the health and life of a child infected with tuberculosis may be evident in two ways: the immediate result may be a period of poor health, consisting of anemia and lack of strength, often with recovery, but with a very slow return to robust health, which is frequently never obtained. In a much smaller number of cases the lungs may be extensively involved and the child present the picture of phthisis as commonly seen in the adult.

In a great majority of cases, therefore, in early life, the tuberculous infection merely shows itself as a state of chronic ill health or general debility. With the advent of young adult life, necessitating occupation in a workshop or factory, the disease often seems to manifest itself for a second time either through the lighting up of the old process or by an added infection from outside contact. It is probable, however, in many instances where the patient in childhood has been infected and has yet grown to be a robust adult, this very early infection acts as a preventative in that the body is more resistant to a subsequent infection.

In those instances also in which a second attack of the disease occurs, the extent of its damages may be much more readily limited than would otherwise be the case.

Children who have attained adult years without having previously been infected with tuberculosis, and at this time of life are exposed to it, often seem peculiarly susceptible to its ravages. In these cases the disease seems to take the type of a general infection, often having a very malignant course, as is seen in infants. It is, therefore, probably true that some degree of immunity to tuberculosis is obtained through childhood infection, and if such children are subsequently surrounded with proper living conditions they may be well prepared to resist the disease, even if further exposed to it.

If, then, the child is ordinarily infected through direct contact with the disease in the home and the extent of tuberculosis in children so exposed is found to be a very large one, and that young adult life often succumbs to phthisis as a result of the lighting up of an early or later added infection, certain measures now more or less in general use in the effort to control tuberculosis should be re-emphasized. The susceptibility of young children even following limited periods of exposure has been so strikingly shown that measures looking towards the isolation of every active case of phthisis in a sanatorium or hospital are increasingly important.

Careful observation of all children so exposed for a period of years has proven of great value not only in the detection of the early stages of the disease but through the building up of the under-nourished and debilitated, has prevented a latent infection from becoming evident. For about five or six years the Boston Consumptives' Hospital has had a large number of children under observation who have in the first part of this period, shown tuberculosis acquired from home infection. At the present time the great majority of these children show little or nothing to indicate their former infection. Some are now young adults. I am confident that as a result of this prolonged period of care and observation they will prove to be well above the average in health in future years.

Medical inspection of school children is proving of great value, especially in arousing the interest of the parents in the health of the child. Many abnormal nose and throat conditions that lead to improper or prevent proper lung expansion are being corrected. The under-nourished child is supervised and the anemic child is examined for tuberculosis. Schoolhouse infection is being eliminated and along with it a better fed, cleaner and more normal mass of school children is apparent.

Some of the best work being carried on in Boston is being done by the Provident Association, where families are taught hygienic living. This necessarily means cleanliness, proper preparation of food, and fresh air in the home. This work, therefore, is fundamental in that it aims to prevent, not only tuberculosis, but disease in general. I hope the time will come when it can be greatly extended.

The recent child labor law in this state will in time undoubtedly make for better health among children and is worthy of cordial support.

If then we surround the child who has been exposed to tuberculosis in the susceptible years of life with healthful conditions in the home, healthful conditions of study, and if we prevent its early entrance into the confinement of factory or workshop life and do this on a sufficiently large scale we have the solution of the problem of the tuberculous child in our hands.

THE SOCIAL WORKER'S EDUCATIONAL INFLUENCE IN THE COMMUNITY.*

By George B. Underwood, M.D., Gardner, Mass.

Before speaking of the educational influence of a social worker in the community, might it not be well to consider for one moment what social work really is? One authority defines social work as "the study of character under adversity and of the influences that mold it for good or ill." Another says that "it is the making the best of what sound life or character there is left, also its ideals are public health and the extermination of disease."

The campaign of the social worker in Gardner is not directed against all poverty and distress, much of which comes under the province of the Associated Charities, the District Nurse, and the Overseers of the Poor, but is a campaign of education as directed to the tubercular patient, their families, and such associates as are brought into direct or constant relation with the tubercular patient. The work naturally focuses first on an active guidance of the tubercular patient that he may make the best use of such resources as he has toward recovery; and then toward the education of his immediate family and associates with the idea of preventing the further spread of the disease.

Hence, the position of the social worker is really that of teacher, as Dr. Cabot says "one who needs all the virtues, no more and no less than the railroad man, the farmer, or the shopkeeper. But his first and chief duty to all men is to give, with such ripening sympathy and friendliness as is possible under the circumstances, the benefit of his expert skill, and so fulfill his special function in the community." Besides natural versatility and tact, the work requires a fund of experience and a professional knowledge gained from a rigorous training.

Her experience and training must be varied, for the sympathetic nature which is absolutely essential, must be supplemented with a practical business training. In one family she has to teach the wage earner to plan the expenditure of his small income in such a way that necessities may be provided for his family, and again a mother must be taught the art of cooking to tempt the appetite of the patient; others need direction in the methods of housekeeping so that the patient may be surrounded by as sanitary and comfortable conditions as possible.

She must have a wide acquaintance with the business men and people of wealth in the community whose confidence she must have gained—business men, because of the dependence upon them in securing employment for those who need suitable work, and people of wealth, because of their assistance in supplying funds, with which to buy necessities and comforts for the destitute. Constant vigilance and oversight is the keynote of the work.

One not familiar with the work, would hardly appreciate the far reaching influence of the social worker. Her frequent visits to a home bring her in contact with the well members of the family whom she interests in the condition of the patient, and who thus become educated in methods of prevention of diseases as well as methods of treatment. In her numerous visits to the home she may find another member of the family in a state of malnutrition, anemia, or debility. She sends the person to the clinic or family physician for examination. No definite signs of tuberculosis are found, but with a little treatment to build him up and increase his resistance the patient is rendered less liable to the contraction and development of phthisis. This work the Association believes to be of great value.

To illustrate more vividly the influence of the social worker, let us picture an ordinary working man from thirty to forty-five years of age, who feels the full responsibility of a family from four to seven, dependent for their sustenance upon his daily work. For some time this man has felt tired, and some nights completely played out, has been subject to frequent colds, as he thinks, naturally attended with more or less cough.

Let us now imagine this man in the office of a good physician, who has been sufficiently interested in his case to have made one or more careful examinations and to have learned personal history, and who, although he has been reasonably certain of his diagnosis of tuberculosis, has just found a positive sputum.

The physician, knowing the poor home conditions and that at the present time, only a small proportion of tubercular cases can be treated at our state sanatoria, is fortunate to have at his command an efficient social worker to see that his instructions and treatment are properly followed.

The physician explains with confidence to the disheartened man that the social worker will prove an important factor in his recovery; that she will teach him not only what he can do to be of the greatest benefit to himself, but also how to avoid being a source of contagion to other members of the family, for although the physician prescribes, it is the social worker who carries out the detail of management.

The next day the social worker, having been asked by the physician to visit the patient, finds the unfortunate man thoroughly discouraged and helpless. The grief that he feels for his needy family, and the hopeless outlook into the future render him an abject figure.

The social worker enters, and on her first visit establishes a bond of sympathy and confidence. She talks with him about the instruc-

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tions of the physician, the necessary rest, the exercise, his food, the care of sputum, the absolute necessity of plenty of fresh air, open windows, sitting out of doors, etc., much of which seemed impossible to him as he sat in the doctor's office and thought of the lack of warm clothing and other means with which to carry out these instructions.

The social worker assures him that she can easily obtain a chair for him and plenty of warm clothing; she knows women ready and glad to sew and provide clothing for his children. So the cloud begins to lift. The confidence which the social worker inspires, arouses hope, and with new encouragement, the patient is better able to begin his battle.

It is usually at this stage that the patient with tuberculosis is the hardest to control. Oftentimes not feeling very sick, in the ordinary understanding of the term, he is inclined to wander. It is now that the frequent visits of the social worker are of greatest importance. She must be alert, earnest, convincing, and ready to correct repeated doubts the patient may have in relation to his treatment. It is now that she strengthens faith in his physician and prevents his going about from doctor to doctor in search of immediate cure.

A person but slightly ill is sometimes somewhat feeble-minded and suffers from tricks of memory with regard to the instructions and advice of the physician. In this case the patient needs constant supervision and instruction, which the physician is unable to give, but which the social worker can supply.

As I have said before, it is the incipient case which benefits most from the supervision of the social worker. A person acutely sick usually suffers pain or some distress which urges him to seek help as soon as possible. The incipient case of tuberculosis does not feel this urgent demand for relief. He may have more or less cough, suffer loss of weight and appetite, and have the sensation of general loss of strength and debility, but with proper treatment, have very little to complain about.

It is in such a situation that the patience of the social worker is taxed, for she must visit the patient frequently, see that every detail of treatment is properly carried out, and continually encourage, so that he will make the necessary effort to secure a permanent result.

Now when the patient is told and fully realizes that he has tuberculosis, his mental attitude toward the whole situation may be likened to the young man going into battle for the first time. He would run away from the enemy were it not for the watchful eye and moral support of his commanding officer. Just so does the continual moral support of the social worker bring back the confidence, and add new courage to successfully arrest and overcome the disease.

The work of the social worker, viewed from the economic standpoint rather than the humanitarian, is of great benefit to the state. If it were not for her supervision of patients returned from sanatoria, the large amounts of money expended in sanatorium treatment would in many cases be practically wasted, for it is a recognized fact that unless followed up, many patients would not continue the necessary treatment at home, and were it not for the constant vigilance and supervision of the social worker a recurrence of the disease would be sure to result. Hence, the sum expended in the treatment of the patient at the sanatorium might prove to be a loss to the state, for the patient again may soon return to his former condition.

In all this work vain indeed would be the efforts of the social worker, if she had not an advisor in the person of a good physician who is entirely in sympathy with her work, understands her needs, and is ever ready to counsel and help her in the many perplexities which are sure to arise. Without this co-operation, failure must follow where success would otherwise be attained.

Some may question—Why bother with this home treatment when out state supports institutions so well equipped for the express purpose of caring for patients? Why incur the expense of salary of a social worker and maintenance of a dispensary? The social worker watches carefully those patients who have returned from sanatoria and sends them to the dispensary or their own private doctor for examination, especially when they are taking up their work again. She follows carefully those who are waiting to go to sanatoria, and if the waiting seems long encourages them to be patient, and in the meanwhile helps them at home as much as possible.

There is a certain class of patients who do better under careful supervision at home. These cases are usually in those persons who suffer from homesickness. Take for instance a homesick person often depressed because of his condition and place him in a sanatorium where there are others afflicted as he is, and he is overcome with a sense of loneliness and homesickness. This class of cases needs the sympathy and encouragement of relatives and friends. When the patient returns from a sanatorium, he finds that the arrangement of his time has to be planned on a new basis. In adjusting himself to this new regime, the advice and moral support of the social worker is indispensable.

In Gardner, an anti-tuberculosis dispensary was established in 1909. This was earnestly and actively opposed by the physicians of the town, who in common with doctors throughout the state, at that time did not appreciate the importance of the diagnosis of incipient cases.

In 1910, the local social worker began her duties, and she was instructed to call on the physicians and see if she could help them in any tubercular case they happened to have under

observation. This plan worked so well that within a few months the physicians, seeing that the dispensary did not detract work from their offices, showed an entirely different attitude: opposition ceased, new interest was aroused, and confidence and co-operation followed. This is evident from the fact that during the first three months after the social worker commenced her duties, and the dispensary was moved to the Board of Health office, forty new cases were reported.

Since its establishment, seventy-three cases have been sent to sanatoria, seventeen of whom have died, four of these having died of other diseases than tuberculosis. Of the remainder forty-seven are working full time; eight, part of the time; and one is unable to work at all. Since 1908, 232 cases have been reported. Most of these the social worker calls upon in the interest of the attending physician or the dispensary.

Not wishing to detract from the benefits derived from sanatoria or local hospital, we wish to emphasize the effort to put more efficient social workers throughout every community in the state. We feel that as much effort should be made to put as many social workers in the field as is put into building new sanatoria, as they both are essential in the management and care of the tubercular patient.

The social worker does much to correct the mistaken ideas of the public, who sometimes practically ostracize the tubercular patient. The social worker should strive to accomplish her ends by tact, constant attention, and friendliness, rather than by making her directions compulsory and thereby creating a feeling of antagonism to her work.

That the social worker is a most important influence in a community cannot be denied, and that her influence is educational is recognized, for as Dr. Cabot says, "The contagion of disease must be opposed by a contagion of intelligence."

THE FIELD OF WORK OF THE ANTI-TUBERCULOSIS ASSOCIATION.*

By Seymour H. Stone, Boston,

Secretary, Boston Association for the Relief and Control of Tuberculosis.

THE STATE PROBLEM.

What is the tuberculosis problem in Massachusetts? Briefly stated there are about 5,000 deaths annually, and a State Commission on Tuberculosis has estimated that there are between 35,000 and 40,000 persons suffering with the disease.

* Read at the sixth Massachusetts Conference on Tuberculosis, March 26, 1914.

THE STATE PLAN FOR HANDLING THE PROBLEM.

The State has developed a well-defined policy for fighting the disease which may be summarized as follows:

1. It has established four (4) State sanatoria, to be used mainly for patients in the incipient or curable stages of tuberculosis.

2. A law was passed in 1911, and amended in 1912, providing that cities shall, and towns may, build hospitals for the care of persons having tuberculosis. It is proposed that these hospitals shall care for patients in advanced stages of the disease. Experience has proved that while persons with the disease in the early or curable form are willing to remain at the State hospitals, those suffering from an advanced form prefer, as is natural, to be near home and friends, and can only be adequately reached and provided for in local institutions.

3. At the same time another law was passed requiring the State to assist these cities and towns in the maintenance of their hospitals by paying them $5.00 per week per patient, provided such patients are indigent and have tuberculosis germs in their sputum.

4. To complete this plan a law was passed which requires cities and towns of 10,000 inhabitants or over to maintain tuberculosis dispensaries for the discovery, treatment, and supervision of needy persons afflicted with tuberculosis.

WHOSE JOB IS IT TO PROVIDE FOR THE TUBERCULAR?

This program, if carried out, will undoubtedly provide for most of those sufferers from the disease who need care. It means the expenditure of large sums of money, and this in turn means appropriations, raised by taxation; for the cost of maintenance of State, and particularly municipal tuberculosis work, is rapidly increasing.

A bulletin issued recently by the National Association for the Study and Prevention of Tuberculosis shows that nearly $20,000,000 was spent last year in the treatment and prevention of tuberculosis in the United States. This fact clearly indicates that the duty of caring for the tubercular is too great a one for private enterprise, and should therefore be assumed by the State and the municipalities, and paid for by taxation. That this policy is gaining headway is shown in this same bulletin which states that 69.3 per cent. of the above sum of $20,000,000 was derived from public funds, either federal, state, county, or municipal, as against a record of 53.5 per cent. in 1909.

THE STATE'S EQUIPMENT.

Massachusetts maintains at public expense:

1. Four State sanatoria under the Trustees of Hospitals for Consumptives.

2. A hospital for indigent men and one for

indigent women at the State Infirmary, Tewksbury.

3. Thirteen municipal hospitals.
4. Fifteen municipal dispensaries.
5. A prison hospital for tubercular prisoners.
6. And special provision for the tubercular insane at twelve asylums.

PRIVATE INSTITUTIONS.

This State program, however, does not mean that there is no place for the private institution. While a large majority of persons afflicted with tuberculosis are poor or of very moderate means, often with others dependent upon them, there are, of course, many who are amply able to pay for the care and treatment received. For this type of case the private institution is the proper place. There are several hospitals and sanatoria specially endowed for this purpose, and excellent institutions already well established, that should by all means be continued and supported.

THE FIELD FOR THE ANTI-TUBERCULOSIS ASSOCIATION.

In view of the above facts what work remains for an Anti-Tuberculosis Association? It is evident that it:—

1. Should not *permanently* maintain a hospital.
2. Should not *permanently* maintain a dispensary.
3. Shoud not *permanently* maintain a visiting nurse or nurses.

It seems to me, however, not only legitimate but very desirable that an Association should carry on experimental work of this sort to demonstrate a need and should then turn it over permanently to the municipality. The longer the Anti-Tuberculosis Association carries on these enterprises the longer the legitmate duty of the municipality is neglected and the proper work of the Association deferred. If it is impossible to induce a municipality to take over a necessary piece of work, I believe that an Anti-Tuberculosis Association should find some other way of passing on the enterprise. If this is not done the energy of the Association is invariably diverted from its own peculiar and important field of work.

THE PROPER WORK FOR AN ANTI-TUBERCULOSIS ASSOCIATION.

An Anti-Tuberculosis Association should, in my estimation, direct its energy along preventive lines of work; that is, in the direction of investigation, education, experiments and legislation.

INVESTIGATION.

Under the head of investigation it can make a study of local conditions, ascertaining the amount of tuberculosis in a given community, determining whether there is proper equipment to provide for it, and proposing a complete program for the suitable handling of the problem.

EDUCATION.

The object of the educational work should be to instruct people how to guard against contracting the disease, to give information about early symptoms, and what to do to protect others from infection. This can be carried out by free lectures in churches, lodges, labor unions, clubs and theatres; also by the distribution at lectures, schools and clubs of literature dealing with preventive measures, health rules, the value of fresh air, and sleeping-out devices. Exhibits of various sorts may be used to advantage but probably the most useful type is the small portable exhibit that can be shown in schoolrooms and churches, and set up in libraries, settlements, clubs, and even in the waiting rooms of hospitals clinics and stations. The newspapers will be found to be a willing and very useful ally in an educational campaign if material is prepared in a newsy form. Too much credit cannot be given the newspapers for all that they have done to assist in the fight against tuberculosis. Nor must it be forgotten that the sale of the Red Cross Christmas Seal has a certain amount of educational value.

EXPERIMENTAL.

As has already been suggested, experimental work, to demonstrate the need of a hospital, a dispensary, a visiting nurse, a day camp or an open air school, may be carried on by an Anti-Tuberculosis Association to the very great advantage of a community. When a real need of this sort is pointed out in a practical way to a progressive city or town, the public authorities are not slow in taking over and establishing the work on a permanent basis.

LEGISLATION.

Interest in legislation is an important function of an Anti-Tuberculosis Association. If the Association is not near the State Capital it is possible for it to be kept informed of the activities at the State House by some organization that is in close touch with the legislative machinery. Such an organization we have had to a certain degree in the Boston Association, and now with the formation of a Massachusetts Anti-Tuberculosis League we hope that distant Associations may be kept even more closely informed about legislation.

After being apprised of what is before the legislature an active Association may do good work by carefully studying the measures, applying them in theory to its own community, and then bringing pressure to bear on the local legislative representative to aid in enacting or defeating them. If it is possible to unite all the Associations for or against a given measure the pressure will be very effective.

An Anti-Tuberculosis Association can be even more effective by insisting on the enforcement of local or municipal laws, such, for instance, as those requiring physicians to register all cases of tuberculosis, obliging cities to build and maintain tuberculosis hospitals and dispensaries, and forbidding spitting in public places. It is also possible for an Association to do good work along the line of urging ample appropriations for the maintenance of municipal hospitals, dispensaries, nurses, open air schools and the Health Department.

COÖPERATION.

One of the most important things for an Association to cultivate is hearty coöperation with the health authorities, relief agencies, and the various civic bodies. It should always bear in mind that each of these agencies is necessarily looking at the tuberculosis problem from a different point of view, which, while it may not coincide with the point of view of the Association, is nevertheless worthy of the most thoughtful consideration. Toleration is a valuable characteristic and the Association that possessess it will find it comparatively easy to coöperate with others.

New Instruments.

HOME-MADE PROBES.

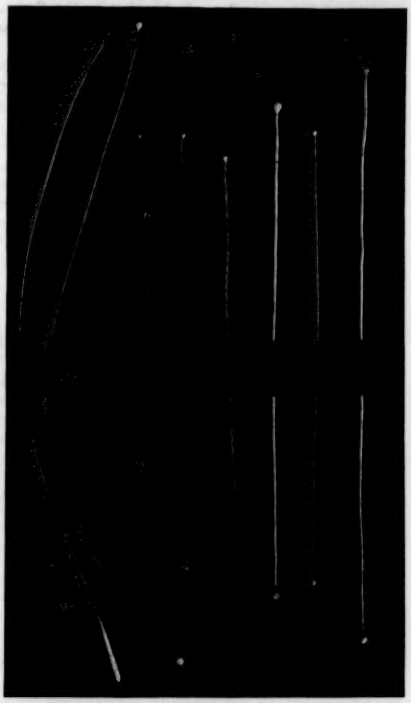
By Ernest Boyen Young, M.D., Boston,

Junior Visiting Physician for Diseases of Women, Boston City Hospital; Assistant in Gynecology, Harvard Medical School.

Probes are always becoming lost or mislaid, and it is often impossible to procure one of suitable size, length or pliability for special explorations, or in some emergency.

If of a size pliable enough to follow a delicate sinus, the tips are apt to be so small as to engage in any slight irregularity of the passage, and so mislead as to its extent. Furthermore, the material is often so stiff that the probe refuses to follow the tortuous course in friable tissue, and a false passage is the result.

In an emergency a very serviceable probe for small sinuses may be made by tipping a strand of silkworm gut with a drop of paraffin, or by wrapping one end with a wisp of cotton and then dipping one or twice in collodion. When paraffin is used, the end of the gut should be scorched in the flame, which roughens it and makes the paraffin bead secure. Metal probes are naturally more satisfactory, and the writer having found it necessary, in several cases, to employ probes of greater length and flexibility than could be bought, has manufactured them for his own use by a method so simple, that it may be generally useful. In the making, it is possible to vary the size of the beaded tip, according to the caliber of the sinus, so that a very flexible fine probe may be armed with a tip nearly as large as those on the heavy probes sold by the instrument makers, thus providing a flexible probe and at the same time minimizing the danger of the tip engaging or creating a false passage.



1. Silk worm gut tipped with cotton.
2. Same tipped with paraffin.
3. Silver wire with borax bead.
4. Copper wire probe.
5 and 6. Silver wire.

Silver or copper wires of suitable size, are most useful although silver is the better; as the smaller silver wires are easily fused in the common alcohol flame, while larger copper wire always requires the flame of a Bunsen burner. The copper wire also oxidizes and may become rough, while the silver wire comes from the flame bright and ready for use. However, any roughness is easily removed by a piece of fine emery paper, sand paper, or a whetstone, while the roughness of the copper may be obviated by dipping the hot wire in

powdered borax, and again heating in the flame. The borax bead of the chemical laboratory also makes an excellent tip.

Under all circumstances, a Bunsen flame is preferable, as the greater heat gives a smoother bead, but for smaller wire the alcohol flame is sufficient.

Larger probes may be made by twisting together strands of smaller wire, and then forming a bead on one extremity. A loop may also be left on the folded end for the insertion of a strand of silk or other material which it may be desired to introduce into the sinus, or as a guide to indicate the direction of the passage.

Probes made in this manner are also useful in "stirring up" indolent granulations; the twists of the wire acting as a mild curet when pushed back and forth.

The wire should be held upright in the flame until a sufficient bead has collected. A few trials enable one to estimate the size of bead which a given wire will hold, as if allowed to become too large, the melted metal will drop from the wire.

The photograph shows various probes made by the methods described.

Reports of Societies.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of Wednesday, March 4, 1914 at 8 P. M. The President, Dr. James C. Wilson, in the chair.

THREE CASES OF WIRING WITH ELECTROLYSIS FOR AORTIC ANEURYSM. ONE HERETOFORE IN PART REPORTED.

DR. H. A. HARE: Three additional cases of wiring with electrolysis for aneurysm of the thoracic aorta are reported and a patient exhibited illustrating the beneficial effects of this procedure more than four years after the first operation and more than two years after his second wiring which was resorted to because he had a return of very severe pain and a marked bulging near the site of the original sac. The great gain is arrest of the lesion and relief of pain.

To my conclusions in an article published by me in the *Journal of the American Medical Association* of April 13, 1912, I would now add that after having performed this operation twenty-five times I can see no reason for changing the views then expressed. I desire, however, to emphasize once more the fact that only especially prepared wire can be used and that silver wire, because it does not coil, is an unsuitable agent.

DISCUSSION.

DR. GEORGE W. NORRIS: I should like to ask Dr. Hare whether the wire introduced into an aneurysm is ever absorbed? I have an impression that in one case of which I have knowledge no wire was found at autopsy.

DR. THOMAS MCCRAE: I agree with Dr. Hare regarding the absence of danger in wiring, if properly done. Regarding the curious course taken by the wire, I have a specimen in which two loops passed through the aortic orifice and down to the lower end of the ventricle. I have seen one case of anatomical cure of abdominal aneurysm after wiring. The patient died from a second aneurysm which was also wired but without the result of the first occasion. I would ask Dr. Hare whether he has any theory upon the relief of pain by the wiring and electrolysis. The question is certainly not one of coagulation.

DR. JAMES TYSON: On March 27, 1911, I presented to the Section on Medicine of the College an aneurysm which had been twice wired in my wards at the University Hospital, wherein, too, one piece of wire had passed through the aortic orifice down into the apex of the ventricle by two loops.

DR. ROBERT N. WILLSON, JR.: Dr. Hare has encouraged me to mention the unfavorable results of a series of wirings done by us at the Philadelphia Hospital. Of six large aneurysmal sacs four were thoracic; two, abdominal. Five of the patients died within three days after wiring. In all cases the procedure was carried out practically as outlined by Dr. Hare. All showed marked relief from pain immediately following operation. One of the patients went back to work and lived for several months. Not one was benefited permanently. While there was immediate relief from pain, almost without exception, the wiring seemed active in hastening the end. During fourteen years I have seen many times for a colleague a patient with a large slowly growing aneurysm under the upper piece of the sternum, and who during this entire time has been living with reasonable comfort.

DR. HARE, closing: Answering the inquiry whether or not the wire is at times absorbed I would say that it is. I have known of one other case already reported in which at autopsy no wire could be found. I do not know whether, finding a tiny point of the wire protruding, the man had for amusement, pulled it out; or, it had undergone some process of absorption. I am inclined to thing that in some cases the wire may have been partly destroyed by the electrolytic process, particularly, if by any mishap, the negative instead of the positive pole were used. The most notable effect in my series of 25 cases of wiring is the relief of pain. The wire used must have temper so that if handled it will spring into the air. I do not see how coagulation can fail to occur if there has been no mistake in the use of the poles. I attribute the relief from pain to the sedative influence of the galvanic current (although I have not much confidence in electro-therapeutics), and to the removal of the strain upon the sac by the clotting. In cases unimproved or in which there is recurrence of pain it is often found that there is more than one aneurysm. The question at issue is whether we shall operate, or allow a man to live in pain. Of course there must be care in the selection of cases. In two cases seen within the last two months operation would have been unjustifiable. In one the sac was filled with a laminated clot. In the other case there was a history of pain and bulging in the third inter-

space to the right. There was present a small expansile mass. There was so much breath sound around the growth that I questioned whether insertion of the needle was possible without puncture of the lung. On the other hand, in some of the more desperate cases, the aneurysmal sac has been black and blue. In one such case the patient was wired in May and later was wired in two places at one sitting, and died from rupture of another sac than the one wired.

THE UNDERLYING FACTORS IN THE SPREAD OF TUBERCULOSIS.

DR. ALBERT PHILIP FRANCINE: In placing the responsibility for the spread of infection we must in the last analysis begin with the individual. The first remedial step is education among the poor and ignorant; the second, improvement of physical conditions of living. Next in importance in this relation is the subject of conditions of labor. The problem of tuberculosis is in a large sense a social and economic one. It is not alone strictly anti-tuberculosis measures which may be confidently looked to for results, but to all the associated movements for the public welfare in health, morals and conditions. Two great medical factors in the communicability of tuberculosis stand out *i. e.*, source of infection and age of infection. The great source of the infection lies in the carelessness of the individual consumptive, and childhood is the age at which infection occurs. Healthy adults have a very considerable resistance or immunity to tuberculosis, but in proportion to bad environment is this immunity impaired. Infection in childhood, as a rule, lies dormant until adult life. It is largely children infected by contact in their homes who furnish later the ever on-comming crop of consumptives. Infection may also be due to tuberculous milk and meat, and the direct transmission of the tubercle bacillus may take place from mother to fetus by placental circulation. Authoritative opinions differ upon the cause of the decreased death rate from tuberculosis in urban populations. Newsholme concludes that this decrease is due to the institutional treatment of the sick of our cities, and particularly the tuberculous sick. Karl Pearson denies the value of our general campaign, and says that the only efficient source of prevention lies in developing communal or race immunity. The maintenance of racial and communal resistance is important and points to the necessity by good food, rest and recreation, airy schools, playgrounds, inspection and supervision for raising this resistance, particularly in childhood and early adult life. When we consider as essentially one the social and economic, and the more strictly medical, conditions, responsible for tuberculosis, the point is brought forcibly upon us that it is by the combination of our anti-tuberculosis campaign and all allied movements toward improvement of health, morals and conditions of the people that we may expect to control this disease. As Folks well says, "If our task is the more difficult because it is bound up with every phase of modern civilization, it is equally true that every substantial advance in other lines assists our cause."

DISCUSSION.

DR. JAMES TYSON: Dr. Francine has well stated the grounds on which is based the spread of tuberculosis. I should like to ask him whether there is any reason to believe that the ascendancy in the struggle against tuberculosis which is being claimed has been at all reversed? My question is prompted in part by a statement in the lay press (from which, however, it is not always safe to quote) that in France the mortality from tuberculosis had doubled in the last twenty-seven years.

DR. FRANCINE, closing: I have to say, Mr. President, in reply to Dr. Tyson's question, that there is not the slightest possible doubt that the figures for the mortality in relation to the incidence of tuberculosis have diminished enormously. There is confusion from the fact that apparently the morbidity is greater because we are reporting all cases today. The information is before the people in a way never reached before and the mortality is certainly diminishing all along the line.

THE INCIDENCE OF FIBRINOUS AND BRONCHOCATARRHAL PNEUMONIA IN THE PHILADELPHIA GENERAL HOSPITAL.

DR. ROBERT N. WILLSON, JR.: Considerable interest and an occasional good natured difference of opinion have existed during the past eighteen months as the result of the determination of one of the medical services in the Philadelphia General Hospital to discriminate sharply between the fibrinous and the bronchocatarrhal types of pneumonia, especially with a view to treating patients suffering from the one condition in cold; and, from the other, in warm fresh air. There should be a clear cut discrimination between the two clinical types of pneumonia. There is a doubt whether there ever has been, or ever will be, a truly asthenic, vitally vigorous, sufferer from bronchocatarrhal pneumonia. Let us keep those patients indoors who are not able to establish a temperature reaction or a considerable leukocytosis as indications of their attempt to outride the storm that has beset them. Wash and warm, and even re-wash, their breathing air a sufficient number of times to render it cleaner and fresher than outdoor air. Send outdoors only such febrile pneumonies as crave the cold and obtain a stimulus and a relief in and from it. Send even these back into the warmth when the crisis occurs, or when, for any reason, they are distressed by the low temperature.

Book Reviews.

The Cancer Problem. A Statistical Study. By C. E. GREEN, F.R.S.E. Third edition. Edinburgh and London: William Green and Sons. 1914.

The first edition of this interesting monograph was reviewed in the issue of the JOURNAL for May 18, 1911 (Vol. clxiv, p. 723). In this third edition, the text has been considerably rewritten and expanded from 90 to 98 pages by the addition of new data, statistics and other material. There have also been added several new plates, figures, maps and diagrams, and a col-

ored frontispiece; but the volume has been unfortunately curtailed by the omission of its excellent index. The plan of the work remains unchanged. The progress of cancer research during the past three years, especially the work of Mr. Erwin Smith on plant cancer, has on the whole tended to confirm the plausibility of Mr. Green's theory. His position remains as yet, of course, quite hypothetical, yet may well some day be deductively and experimentally proved correct.

Infections of the Hand. By ALLEN B. KANAVEL, M.D. Second edition, thoroughly revised. Philadelphia and New York: Lea and Febiger. 1914.

The first edition of this book was reviewed in the issue of the JOURNAL for May 16, 1912 (Vol. clxvi, p. 743). As indicated in its sub-title, it is "a guide to the surgical treatment of acute and chronic suppurative processes in the fingers, hand, and forearm." In this second edition, the author has made certain additions in regard to chronic processes, has introduced a clearer system of cross-references and has inserted *resumés* at the end of several of the chapters. The number of illustrative engravings is increased from 133 to 147. The total number of pages is increased from 447 to 463. The work should retain its position as an authoritative monograph on the important subject of manual infections.

Sanitary Statistics of the Navy for the Years 1909-1910. Rome: Italian Polygraphic Office. 1913.

This belated biennial report of the chief inspector of health to the Italian minister of marine records the health statistics of the navy for 1909 and 10. It follows the system of the preceding report (reviewed in the issue of the JOURNAL for Apr. 11, 1912 (p. 566) with certain changes in the nosologic tables to keep pace with the progress of medical science. It completes a decennium of statistics. In the succeeding decennium, it is purposed to adopt other simplifications and modifications, not so much in the classification of diseases, as in the number and system of columns. As it stands, the volume presents an immense mass of tabulated data, with a small amount of interpretative text, which should be of undoubted value and interest to those concerned in such subjects.

Dental Diseases in Relation to Public Health. By J. SIM WALLACE D.Sc., M.D., L.D.S. London: The Dental Record. 1914.

This volume consists of three communications made by the author at medical meetings. The first, which comprises over three-fourths of the pages, and from which the book takes its title, was an address before the recent Seventeenth International Medical Congress at London. The second deals with "the physiology of oral hygiene," and was the opening of a discussion on dental hygiene in infancy and childhood, before the Royal Sanitary Institute at Exeter. The third, on "children and dental disease," was presented before the British Medical Association. They indicate well the status and problems of popular education in dental and oral hygiene in England, and therefore should be of special interest to those concerned with similar problems in the United States.

Cunningham's Text-Book of Anatomy. Edited by ARTHUR ROBINSON, M.D., F.R.C.S., Ed. professor of anatomy, University of Edinburgh. Fourth edition, enlarged and rewritten. pp. xxv—1596. New York: William Wood and Company. 1913.

This fourth edition of Cunningham's Anatomy has undergone special revision because of the deaths of Professor Cunningham, Professor Birmingham and Professor A. H. Young. The articles which these men have written for previous editions have been revised and in part rewritten by others. In general, however, the book maintains the appearance of the editions which have gone before. The editor has accepted completely the Basle anatomical nomenclature except in certain instances where the new terms have been unsatisfactory. This text-book remains one of the best composite volumes on the subject of general anatomy. The separate sections are written by men of recognized distinction in their various fields, and the occasional overlapping by the various writers is not to be regarded as a detriment except when insofar as it increases somewhat the size of an already ponderous volume. The illustrations are admirable and printed exclusively in the text. We highly commend this edition as we have its predecessors as one of the relatively few standard books of its type. The work of the American publisher is entirely satisfactory.

A Manual of Medical Treatment or *Clinical Therapeutics.* By I. BURNEY YEO, M.D., F.R.C.P. Fifth edition by RAYMOND CRAWFORD, M.A., M.D., Oxon., F.R.C.P., and E. FARQUHAR BUZZARD, M.D., Oxon, F.R.C.P. In two volumes. William Wood and Company. 1913.

The fifth edition of this manual, which comes in two volumes of eight hundred pages, compressed, however, into a convenient size, will appeal to those physicians who wish to look up the conservative treatment of disease. Many complicated prescriptions are included.

THE BOSTON

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THE ANTI-VACCINATION BILL.

OPPOSITION to vaccination arose just as soon as Jenner told the world "duly and efficiently performed it will protect the constitution from subsequent attacks of smallpox as much as that disease itself will. I have never expected that it would do more and it will not, I believe, do less." Cartoonists seized upon the subject in the early days of vaccination, and many sermons were preached against the practice. It is curious that from the beginning most of those who opposed vaccination refused to study its effects at first hand, but based their opinion upon theoretical, sentimental, or religious grounds. Many a detractor wanted to make the fate of vaccination hang upon a single case of smallpox. Jenner never claimed vaccination to be an infallible prevention, and always took care to emphasize the fact that has been demonstrated over and over again during the past hundred years, that vaccination protects against smallpox in the same way that smallpox protects against smallpox. Some people have smallpox two, three, and four times. Jenner mentions, "The lady of Mr. Guinnett, who has had the smallpox five times. . . ."

We now know perfectly well that the effects of vaccination wear off in time, and that persons should be re-vaccinated in order that the protection may be renewed. Persons successfully vaccinated on two occasions are usually immune from smallpox for life. Vaccination and re-vaccination, systematically and generally carried out, confer complete protection to a community or a nation. In other words, while the individual protection is not always perfect, the communal protection is absolute.

Thomas Jefferson, in 1806, wrote to Jenner saying, "Future nations will know by history only that the loathsome smallpox has existed, and by you has been extirpated." This prophecy has not been fulfilled, though eminently possible. Germany has taught the world how to utilize Jenner's great demonstration. On April 8, 1874, Germany passed a general compulsory vaccination and re-vaccination law. This law requires the vaccination of all infants before the expiration of the first year of life, and a second vaccination at the age of twelve. Since this law went into effect there have been no outbreaks of smallpox in Germany; in fact, the disease has practically been abolished from that great nation.

Those who have practical experience with smallpox soon learn that persons who have been well vaccinated do not contract the disease, while those who have not been vaccinated almost invariably do so if exposed. The most convincing demonstration is to visit a smallpox hospital, where doctors, nurses, ward-tenders, and others who come in frequent and intimate contact with many cases of smallpox, never contract the disease.

One of the most convincing demonstrations concerning the efficiency of vaccination was made in Boston on August 16, 1802, when nineteen boys were vaccinated with the cow-pox. On November 9 twelve of them were inoculated with smallpox; nothing followed. A control experiment was made by inoculating two unvaccinated boys with the same smallpox virus; both took the disease. The nineteen children of August 16 were again unsuccessfully inoculated with fresh virus from these two boys. This is one of the most crucial experiments in the history of vaccination, and fully justified the conclusions of the Board of Health—*cow-pox is a complete security against the smallpox.*

The splendid results recently obtained in the Philippines are a modern demonstration of the practical results of vaccination.

Much fuss has been made concerning the dangers of vaccination. The alleged dangers have been greatly magnified. The chief danger lies in the fact that an open wound is produced which is subject to the complications of any wound. Even a pin prick or a razor scratch may result in death. When the aggregate number of acci-

dents resulting from the complications of vaccination are considered, the total is so small that the individual risk may be disregarded. Furthermore, the methods of vaccination have been greatly improved during the past decade, and the quality of the vaccine virus furnished through government inspection and control, in accordance with the law of July 1, 1902, is a safeguard which ensures a pure and potent vaccine virus.

John Ring was an active protagonist of the cause of vaccination, and was accustomed to answer antivaccination arguments with a vigorous pen. On one occasion Jenner wrote to John Ring as follows, "Your satires against the antivaccinationists are keen, but the keenest of all are those which are engraved with the point of your lancet."

THE ALIEN INSANE IN THE CIVIL HOSPITALS OF NEW YORK STATE.

DR. SPENCER L. DAWES of Albany, appointed by Governor Dix special commissioner to make an investigation on this subject, in order to ascertain existing conditions and their causes, and suggest remedies therefor, has submitted to Governor Glynn an elaborate report of his studies. These were based upon: (1) public hearings at the state hospitals for the care of the insane; (2) public hearings in Albany and New York, at which were examined hospital superintendents, representatives of charitable institutions, of steamship companies, and of foreign governments, the chief examiner of the Bureau of Deportation and his assistants, and private citizens; (3) statistics of the nativity and citizenship of every patient in the state hospitals, obtained from a special census taken September 30, 1912.

The investigation covered a large number of topics, among which were, provision for cost and maintenance of the insane in the state, increase of insane patients in the state hospitals compared with increase in general population, nativity and parentage of the insane in New York State and the United States, time of aliens in this country before admission to state hospitals, cost of caring for the alien insane, eugenic effects, and attitudes of other states. As to the matter of eugenics, it is stated that the long-standing belief in the popular mind of the association of insanity with heredity has been confirmed by modern investigation, so far, at least, as to establish the point that heredity is by far the most important single factor in the causation of certain forms of mental disease. To ancestors afflicted with feeble-mindedness, dementia precox, and other mental disorders, numerous mentally defective or mentally diseased descendants have been traced in many of the families which have been investigated, while in a few of the cases examined, where one party to the marriage was normal (and presumably of normal ancestry), the other being insane, some normal children resulted. The result of investigations into heredity down to the present time entirely justifies the statement that it is highly undesirable that the feeble-minded, epileptics and those with certain types of insanity should have children. The opinion is therefore expressed that mental defectives, the insane, and those particularly likely to become insane, who are so undesirable as parents of future generations of Americans, should be excluded, as far as possible, from entry into the state and country. If, however, they have been admitted, but have not become citizens, they should be returned to the homes from which they came.

In the report is included a series of recommendations, first, for the State of New York, and, second, for action by the United States Government. Under the first heading it is advised that since at present the only authority under which an insane alien can be debarred from entering this country is the federal law, which can be enforced only by federal officers, the state, through its executive or legislature, should urge upon congress the necessity of providing sufficient appropriations for the efficient enforcement of the Immigration Act and of enacting needed amendments to this. The part of the state in effecting deportation of insane and mentally defective aliens consists in reporting such cases to the federal immigration authorities, furnishing information for the verification of their landing, and certifying to the conditions found and their origin from causes which existed prior to landing. This work, so far as it relates to the insane, should be performed more efficiently each year by the Bureau of Deportation, with the coöperation of the State Hospital Commission and the superintendents of state hospitals, provided that adequate funds are provided for the purpose. For the past three years the number of aliens repatriated and of non-residents returned from the

state has each exceeded the number of aliens deported by the federal authorities. As repatriation at present depends upon the consent of the steamship companies, it is highly desirable that the rights of the state in this matter should be protected without further delay by amendments to the federal and state laws. Better arrangements should be made with the proper authorities of foreign governments for the reception of insane aliens repatriated by the state. Existing facilities for statistical research should be extended and used to the fullest extent for the study of the whole question of the alien insane, along the lines of this inquiry.

The recommendations for action by the federal government are given in two divisions: (*a*) under existing laws, (*b*) new legislation recommended. In the first, as to the exclusion of insane and mentally defective immigrants at the time of their arrival, it is stated that there is need for the employment at the ports of entry of more trained alienists, that, as far as possible, physicians skilled in the detection of mental diseases and defects should be selected from the candidates for admission to the Public Health Service, and that, in order to insure a greater number of alienists, physicians in this service should be detailed for training at hospitals for the insane. All that is required for putting these recommendations into effect is the necessary appropriations, and unless the things are done, much of the legislation recommended will be ineffective. There is also needed the employment and careful training of a sufficient number of interpreters for this part of the medical examination.

A number of recommendations are then made in regard to deportation by federal warrant of insane aliens who become public charges from prior causes or are found in the state in violation of law. In the division of new legislation recommended the following points are taken up: 1. Exclusion of insane and mentally defective immigrants at the time of their arrival or before embarkation. 2. Deportation by federal warrant of insane aliens who become public charges from causes existing prior to landing or are found in the state in violation of the Immigration Act. 3. Repatriation of aliens at expense of state or friends, and with consent of aliens themselves. 4. Appropriations. 5. The proper method of returning the alien insane to their homes. It is impossible to detail the various recommendations here, but the following under the first point may be mentioned as worthy of special attention: It is urged that the Immigration Act should exclude immigrants with chronic alcoholism and those with psychopathic inferiority (many of these cases, though detected at the ports of entry, pass the inspecting officers, as the present law does not forbid their admission); that the act should provide that each immigrant examined receive at the port of entry a certificate that no mental or physical diseases or defects were found, or that those found had been set forth therein; that it should provide for the imposition upon transportation companies of a fine of not less than $200 for bringing to this country any alien whose insanity, mental defect, chronic alcoholism, or constitutional psychopathic inferiority could have been detected by a competent medical examination prior to embarkation; and that it should provide for a special study of the methods employed in the detection of mental diseases and defects among immigrants, the changes desirable, etc., by a board of medical experts, including officers of the Public Health Service and physicians in civil life who are especially familiar with the subjects involved.

PREPARATIONS FOR MILITARY AND NAVAL SURGERY IN MEXICO.

With the final and actual outbreak of hostilities between the Mexicans and the United States troops, the possibilities of active military surgery and nursing in this country become immediate and imminent. The medical corps of both the Army and the Navy are in a state of admirable and prepared efficiency. On April 22, Surgeon-General Braisted of the Navy published the following plans for caring for the naval sick, wounded, and dead.

"The medical department is actively at work preparing for the care of the sick and injured, not alone of our own, but of the enemy as well, as demanded by the Geneva convention.

"The naval organization for the ships and landing parties is complete in all regards, and steps for the care of the sick and wounded and for sanitation and the preservation of health ashore are being taken in conjunction with the Public Health service and Red Cross organization.

"It is the intention to bring the remains of all naval dead to the United States at the

earliest opportunity, dependent upon the circumstances and location attending the fatalities, and either to forward them to the next of kin or to make final interment in a national cemetery, as may be desired by the families of the deceased. All expenses of the dead will be defrayed by the United States."

On April 22 also Surgeon-General Gorgas of the Army presided at a meeting of the executive committee of the Red Cross, at which a program was arranged for nursing at field hospitals.

Military medicine and camp hygiene have made great progress since, and partly in direct consequence of, the war between the United States and Spain, and our state of preparation should be much better now than it was at the outbreak of that conflict. Particularly the development of antityphoid inoculation has enabled the protection of practically our entire army and navy against one of the most dreaded and fatal of military epidemic diseases. Moreover, the Red Cross stands ready to send at immediate notice 4200 nurses to augment the regular nursing corps, so that the deficiency of nurses, which was so grievous at the beginning of the Spanish War, should not now occur.

Probably no class in the community regrets the necessity of war more than do physicians and nurses. Yet, whether from civil or from military life, probably no class will make a readier response to the demand upon them for service at the front, for working on the firing-line is with them a daily professional habit.

AN IMPORTANT TRIAL ON ANIMAL EXPERIMENTATION.

A TRIAL has recently been held in Philadelphia, whose decision will have an important bearing, as precedent, on freedom or restriction of animal experimentation in this country. The Women's Pennsylvania Society for the Prevention of Cruelty to Animals caused the arrest of Dr. Richard M. Pearce, Dr. Joshua E. Sweet, Dr. Alonzo E. Taylor, and three other members of the medical faculty of the University of Pennsylvania, for alleged cruel treatment of dogs after operations. Much of the evidence brought by the prosecution was of the nature of the absurd accusations usually made by anti-vivisectionists.

In the course of his charge to the jury Judge Bregy said:—

"To indicate a view on the part of physicians that these operations upon the dogs were made for scientific purposes to obtain information for the alleviation of human suffering, I charge you that the law of Pennsylvania does not allow pain and suffering, torment or torture to be inflicted upon dogs for any purpose except the relief of the suffering of the dog itself. They have no right to torture a dog or violate the law as I have read it to you for the purpose of obtaining scientific information. The law says that any person that does a thing as I have read it to you—that is, if a person is guilty of wanton cruel torture of an animal he shall be guilty of a crime."

After being out over 48 hours the jury reported a disagreement and was discharged. It is expected that a new jury will be empanelled. Meantime the prosecution, encouraged, has announced its intention to secure new warrants for the arrest of other prominent physicians and invesigators, charging them with cruelty in performing surgical operations on animals.

MEDICAL NOTES.

NEW JERSEY STATE BOARD OF HEALTH.—The somewhat belated thirty-sixth annual report of the board of health of the state of New Jersey, recently published, records the activities of that body for the year ended Oct. 31, 1912, together with the report of the bureau of vital statistics for the same period. The report of the secretary, Dr. Bruce S. Keator, is followed by those of the divisions of medical and sanitary inspection, creameries and dairies, state laboratory of hygiene, food and drugs, sewerage and water-supplies. The report of the bureau of vital statistics consists almost entirely of tabulated data.

THE AMERICAN SOCIETY FOR PHYSICIANS' STUDY TRAVELS.—The American Society for Physicians' Study Travels will make its first tour immediately after the close of the next meeting of the American Medical Association, starting from Atlantic City June 26. The complete itinerary can be obtained upon application to the secretary, Dr. Albert Bernheim, 1225 Spruce Street, Philadelphia, and it will be found to promise an interesting, pleasant and profitable

outing to all participants. The objects of the newly-formed organization are in the main to afford an opportunity to make the best use of one's vacation, time and money, in seeing cities and health resorts, and gaining practical knowledge of their institutions—medical, historical, and municipal—as well as to attend clinics, demonstrations, lectures, illustrated with lantern slides, and public addresses.

In addition, however, many sight-seeing trips have been arranged for, and the path of the Society lies by rail and water through a section of this country and Canada abounding in picturesque, sylvan, and grand scenes, so that the tourist, whatever his individual taste, will enjoy the advantages of healthful recreation en route. It is believed that American physicians and their wives will appreciate the benefits of these tours, which have become so popular, both in Germany and in France, where they are undertaken even more than once annually.

Early bookings, through the secretary, are urged, in order that satisfactory accommodations can be secured for all who desire to participate.

Jubilee of Melbourne University Medical School.—The medical school of the University of Melbourne, the oldest medical school in Australia, will during the remainder of this current week, celebrate the jubilee of its foundation. During the fifty years of its existence it has already graduated about 1100 practitioners, and now has an attendance of 380 students.

"The Melbourne School has from the first insisted on a five years' course, and its degrees have been registrable in the United Kingdom since 1890. The celebrations will commence on Thursday, April 30, and will last three days. The university is asking the state government to provide funds for the appointment of assistant professors of anatomy, physiology and pathology, the proper staffing of these departments being regarded by the faculty of medicine as the most pressing want of the school. Old graduates are being invited to contribute varying sums annually for five years to a permanent fund, the interest of which will be devoted to the promotion of clinical research in the teaching hospitals of Melbourne. A history of the medical school is being prepared. The jubilee celebrations will include an inaugural ceremony in the Wilson Hall of the university; a series of short addresses on the history, needs and prospects of the school; demonstrations in the laboratories, museums and hospitals; a jubilee dinner, and a theatre party. A portrait of the dean of the faculty, Sir H. B. Allen, is to be painted for presentation to the university."

BOSTON AND NEW ENGLAND.

Milk and Baby Hygiene Association.—The recently published fifth annual report of the Boston Milk and Baby Hygiene Association records the work of that organization during the past year. In this period the number of milk stations was increased from 9 to 12. The number of babies cared for in 1913 increased 13% over 1912; 3421 babies made 13,754 weekly visits to the milk station conferences; and 41,945 visits were made by nurses to babies in their homes. Of the babies cared for by the Association, one-half were breast-fed.

Prevention of Milk-Borne Epidemics.—The Massachusetts State Board of Health has recently sent to every practitioner in the Commonwealth a circular letter calling attention to a recent vote of the Board,

"That beginning March 1, 1914, it shall be the duty of the officers in charge of any city or state institution, charitable institution, public or private hospital, dispensary or lying-in hospital, or any local board of health or any physician in any city or town to give immediate notice (preferably by telephone or telegram, 'collect') to the State Board of Health, Room 145, State House, Boston, Mass., in every case coming to their notice in which typhoid fever, diphtheria or scarlet fever has occurred in the household of any person engaged in the production, transportation or distribution of milk for public sale; and in every case coming to their notice in which typhoid fever, diphtheria or scarlet fever has been due, or presumably has been due, to the consumption of milk infected with material derived from persons infected with said diseases."

The purpose of this regulation is to aid the Board in its effort to prevent epidemics due to the contamination of milk supplies.

Massachusetts Homeopathic Medical Society.—The seventy-fourth annual meeting of the Massachusetts Homeopathic Medical Society, held recently in Boston, was attended by about 200 members. At the closing session, the following officers were elected for the ensuing year: President, Dr. T. E. Chandler of Boston; first vice-president, Dr. Amanda C. Bray of Worcester; second vice-president, Dr. Harry J. Lee of Boston; recording secretary, Dr. E. S. Calderwood of Roxbury; corresponding secre-

tary, Dr. Benjamin T. Loring of Boston; treasurer, Thomas M. Strong of Boston; and chairman of the board of censors, Dr. George R. Southwick of Boston.

HOSPITAL BEQUESTS.—The will of the late Susan H. Leeds, of Boston, which was filed recently in the Suffolk registry of probate, contains a bequest of $500 to the Boston Floating Hospital. It also provides that one-half of the ultimate residue of the estate shall be given to the city of Boston for use in its department for consumptives.

The will of the late Sarah S. Pierce, of Lynn, Mass., which was filed on April 21 in the Essex County registry of probate, provides that on the death of her husband $1000 shall be given to the Lynn Hospital, to be known as the Pierce Fund.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending March 21, 1914: Diphtheria, 39; scarlatina, 127, of which 13 were non-residents; typhoid fever, 2; measles, 78, of which 1 was non-resident; tuberculosis, 42, of which 3 were non-residents.

The death-rate of the reported deaths for the week was 21.32.

NEW YORK.

VISITING OF INFECTIOUS DISEASES.—On April 1 the City Health Department inaugurated the practice of having all cases of measles, scarlet fever, and diphtheria discharged from the hospitals of the department visited at once by the district nurse of the Bureau of Infectious Diseases, to determine the condition of the patient (as to infectivity, etc.), and the home condition of the family. Advice is given as to the care of the convalescent patient and if necessary the family is referred to the proper charitable organization for financial and other assistance. At least one additional visit is made after the expiration of the incubation period of the disease, to ascertain if any secondary cases have developed. It is announced that it is the intention of the Commissioner of Health to eventually give to this work the full force of hospital social service visiting in the complete sense of the term, although this will, naturally, necessitate a large staff of district nurses. The establishment of a special convalescent home for suitable cases is one of the possibilities hoped for.

PROVISION FOR PERTUSSIS.—At a meeting of the Section on Pediatrics of the New York Academy of Medicine, held on April 9, at which whooping-cough was the topic of the papers and discussions, a resolution was adopted providing for the appointment of a committee to urge upon the Health Department, in view of the present large direct and indirect mortality from the disease, the necessity of making more ample provision for dealing with it.

REORGANIZATION AT PRESBYTERIAN HOSPITAL.—It is announced that the managers of the Presbyterian Hospital, New York, have so reorganized the clinical and scientific work as more closely to coördinate it with the instruction in the College of Physicians and Surgeons, Columbia University. Dr. Theodore C. Janeway, Bard professor of the practise of medicine, has been appointed medical director; Dr. George E. Brewer, professor of surgery, surgical director; and Dr. William G. MacCallum, professor of pathology, pathologist. All these appointees will have continuous service and single responsibility.

ALIEN INSANE IN NEW YORK.—The recently published report of Dr. Spencer L. Dawes, special commissioner on the alien insane in the civil hospitals of New York State, presents a large amount of tabulated statistics, with discussion thereof, and recommendations for both state and nation in dealing with the problem. These recommendations fall under three headings: first, the exclusion of insane and mentally defective immigrants at the time of their arrival; second, the deportation of insane aliens by federal warrant; third, the repatriation of aliens with their consent at the expense of the state or of friends.

GLANDERS.—The latest number of the *Monthly Bulletin* of the City Health Department is largely devoted to the subject of glanders in the horse and in man, which, it declares, is one of those diseases, like typhoid fever and Asiatic cholera, that ought not to exist in our modern civilization. In the Borough of Manhattan in 1913 there were discovered 589 glandered animals among approximately 65,000 horses, or about 9 out of every 1000. The disease is found to be most frequently transmitted through blacksmith shops and public drinking troughs. The returns in the Bureau of Records show that in the city of New York there were in 1909 three deaths from human glanders; in 1910, four; in 1911, three; in 1912, five; and in 1913, one.

Boylan Anti-Narcotic Bill. — Governor Glynn has signed the Boylan anti-narcotic bill, recently passed by the legislature. One of the features of this is that physicians, druggists, dentists and veterinarians are required to obtain from the Health Department blanks, bound in book form, in which to keep duplicate records of the purchase of narcotic drugs and of the manner of their disposal. The governor has also signed the bill amending the State charities law in relation to the commitment of the feeble-minded, and another bill providing for a commission to investigate the custody, treatment and training of the mentally deficient, and submit a full report for action by the next legislature. The law now made effective authorizes any judge of a court of record to determine the mental condition of any person alleged to be feeble-minded, and, after hearing the evidence, to commit, at his discretion, the person to a public institution. It is specified that every application for commitment must be accompanied by the certificate of two physicians to the effect that in their opinion the person named is mentally deficient.

Current Literature

Medical Record.

April 11, 1914.

1. Stark, H. S. *The Phenomenon of Pathological Antagonism; Its Relation to Diabetes Mellitus.*
2. Lerch, O. *A Contribution on the Thymus.*
3. Burrows, W. F. *The Cure of Habitual Constipation by the Intra-abdominal Use of Oil.*
4. Walker, F. E. *Practical Points in Surgery.*
5. Jacoby, A. *Liver Abscess.*
6. Kenefick, T. A. *The Internist and Seminal Vesiculitis.*

New York Medical Journal.

April 11, 1914.

1. Clark, L. P. *Psychopathic Children.*
2. Gordon, A. *Internal Pachymeningitis in Young Children.*
3. Lilienthal, H. *Hypertrophic Pyloric Stenosis in an Infant; Rammstedt's Operation.*
4. Sajons, C. E. DeM. *Toxemias in the Genesis of Hyperthyroidism, and Their Treatment.*
5. Price, G. E. *A Sixteenth Century Paranoiac.*
6. Smith, H. *Plastic Operation for the Restoration of Severed Vocal Cords; Permanent Thyroid Fistula Following Attempted Suicide with a Razor.*
7. Bell, F. McK. *The "Why" of Obesity.*
8. Crenshaw, H. *Dream Interpretation.*
9. Rosenbloom, J. *Gum Camphor as a Preservative for Urine.*

The Journal of the American Medical Association.

April 11, 1914.

1. *Henderson, Y. *Respiratory Experiments on Man.*
2. *Shumacker, L., and Middleton, W. S. *The Cardiac Effects of Immoderate College Athletics.*
3. *Mitchell, A. R. *Ischemic Pains.*
4. Rosenow, E. C. *Etiology of Arthritis Deformans. Preliminary Note.*
5. *Haas, S. L. *Free Transplantation of Bone Into the Phalanges.*
6. Frazer, T. *The Tongue and Upper Alimentary Tract in Pellagra.*
7. Bristol, L. D. *Paratyphoid Fever, with Report Including Post-mortem Examination of a Fatal Case of the "A" Type.*
8. McLean, F. C., and Silling, Z. *Further Simplification of Quantitative Determination of Chlorid in the Urine.*
9. Plummer, W. G., and Ness, G. B. *Tumor of the Middle Cranial Fossa Involving the Gasserian Ganglion.*
10. *Shalet, L. *Clinical Report of Five Hundred and Seventy-One Cases of Pulmonary Tuberculosis Treated with Tuberculin.*
11. Anders, J. M. *An Interesting Case of Chronic Lead-Poisoning with Relapse Following Fresh Exposure.*
12. Wile, U. J. *The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System. A Preliminary Report.*
13. Wallace, R. *An Unusual Case of Vaccine Anaphylaxis.*
14. Clark, O. *Exophthalmic Goiter as a Clinical Manifestation of Hereditary Syphilis.*
15. Tousey, S. *A Case of Disseminated Carcinoma of the Breasts and Axillae Improved by Radium.*
16. Barton, W. M. *The Favorite Formula or Pet Prescription.*

1. Henderson gives concrete examples of an interesting series of experiments on respiration in the normal human subject. No conclusions are drawn. The paper is a statement of effects.

2. The authors in a careful and well tabulated review find that athletic training leads at first to physiologic hypertrophy of the heart, but when prolonged and weakened by severe athletic contests it usually leads to hypertrophy plus dilatation of a variable degree, frequently marked by valvular insufficiency. Functionally, the hypertrophied heart, even when dilated and giving distinct evidence of valvular insufficiency, may prove more fitted to carry the man through a severe athletic contest than a normal heart.

3. Mitchell finds that many pains for which we are otherwise unable to find a proper cause are due to a temporary ischemia or anemia of the part, which, under proper treatment with agents causing vasodilation, are readily cured.

5. Haas successfully transplanted free bone between resected areas in the phalanges and obtained satisfactory union and functional results.

10. Shalet believes that every case of tuberculosis should be treated with tuberculin. Of the pulmonary type there is no way of telling beforehand what cases will be benefited the most, but all should be given a trial. In his series 25% showed distinct improvement or were apparently cured; 15% were made worse. The effect of tuberculin on localized visible tuberculosis, such as fistulae in ano, glands of the neck, etc., is marked, and in the case of glands of the neck by far the treatment of choice. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

APRIL, 1914.

1. *SELLARDS, A. W. *A Clinical Method for Studying Titrable Alkalinity of the Blood and Its Application to Acidosis.*
2. *BROWN, L. *Some Errors in the Diagnosis of Pulmonary Tuberculosis.*
3. *GREY, E. G. *Observations on the Protective Enzymes of the Body.* (*Abderhalden.*)
4. SHIPPEN, L. P. *Principal Types of Micro-Organisms in Baltimore Milk.*
5. JOSEPH, M. *Bacteriological Findings in Baltimore Oysters.*
6. DIETZ, M. *Brief Note on the Baltimore City Water.*

1. This is a detailed chemico-physiological article on the complex subject of acidosis, diminished alkalinity, etc., and their relation to diabetes and certain obscure comas. The paper shows the result of much careful work.

2. Brown, in a paper most valuable on account of its frankness, describes various mistakes he has made in the diagnosis of pulmonary tuberculosis. Of great interest is the description of 5 cases diagnosed as phthisis which turned out to be Hodgkin's disease. Among other causes for error were malignant disease, bronchiectasis and infarction of the lung.

3. Grey, as the result of his experiments, concludes that the Abderhalden ferments are specific.

[J. B. H.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

APRIL, 1914.

1. MAYO, C. H. *Resection of the Rectum for Cancer, with Preservation of the Sphincter.*
2. *BLOODGOOD, J. C. *Carcinoma of the Lower Lip; Its Diagnosis and Operative Treatment.*
3. *PATERSON, H. J. *The Operation of Gastrojejunostomy and the Principles Which Should Determine Its Use.*
4. *CRILE, G. W. *Cholecystectomy vs. Cholecystostomy and a Method of Overcoming the Special Risks Attending Common-Duct Operations.*
5. DAVID, V. C. *A Bacteriological Study of Fifty Cases of Non-Tuberculous Diseases of the Bladder and Kidney.*
6. BEEBE, S. P., AND VAN ALSTYNE, E. V. N. *Treatment of Transplantable Rat Sarcoma by Fulguration.*
7. *KELLY, H. A., AND DUMM, W. M. *Urinary Incontinence in Women, without Manifest Injury to the Bladder.*
8. FULLERTON, W. D. *Fibroid Tumors of the Ovaries.*
9. STURGIS, M. G. *Mixed-Cell Tumors of the Soft Palate.*
10. *SWEET, J. E., AND STEWART, L. F. *The Ascending Infection of the Kidneys.*
11. *BLAIR, V. P. *Dental Disorders and Peridental Infections; Their Relation to Neighboring Organs.*
12. CASTLE, O. L. *Primary Carcinoma of the Liver in Childhood.*
13. KANAVEL, A. B. *Mobilization of the Duodenum.*
14. *JOHNSTON, G. C. *The Pituitary Gland in Its Relation to Epilepsy.*
15. *CODMAN, E. A. *The Product of a Hospital.*
16. CAULK, J. R. *Incrustations of the Renal Pelvis and Ureter.*
17. HARTZ, H. J. *Gastric Sarcoma.*
18. MOSCHOWITZ, A. V. *The Pathogenesis and Treatment of Herniae of the Linea Alba.*
19. CORNER, E. M. *Arthrotomy of the Hip.*
20. FORBES, A. M. *The Treatment of Scoliosis.*
21. HEINEBERG, A. *Uterine Endoscopy; an Aid to Precision in the Diagnosis of Intra-Uterine Disease.*
22. TOREK, F. *Laryngectomy Combined with Gastrostomy.*
23. SCHMITZ, H. *Massive X-raying in Gynecology.*
24. COERR, F. H. *A Double Lever Instrument Devised for the Open Reduction of Fractures.*
25. ANDERSON, W. J. *Head Injuries; Some Conclusions.*

2. Bloodgood's article is the type of exposition which should be in the hands of every practitioner throughout the country. He divides his cases into three groups: 1a, in which local excision of the growth only was done, after five years the percentage or probability of cure was found to be 63%. Group 1b, glands negative, shows 95% cures, and group 1b, glands positive, shows only 50% cures. He believes that the operative removal of the glands is always indicated, and the percentage of cures depends largely on early operation. The article is well illustrated and the figures should be studied in detail.

3. Paterson finds that after gastrojejunostomy, which he believes to be a physiological operation and not a purely mechanical one, the total gastric chlorides are reduced on the average 30%. He also thinks that we might safely return to the anterior operation without harm. Occlusion of the pylorus after the above operation is an unnecessary complication and based on erroneous pathology. Gastrojejunostomy is preferable to excision of ulcer near the pylorus or in the body of the stomach.

4. Crile believes that in the type of case which has recurrent cyclic disturbances or repetition of previous symptoms after cholecystostomy, that cholecystectomy is the operation of choice, the latter showing less morbidity. The clinical end results of cholecystectomy are good, while in unsuitable cases cholecystostomy is followed by recurrent cholecystitis. If acute infection be present then in most cases cholecystostomy should be done first, to be followed later by cholecystectomy.

7. Kelly and Dumm describe the progressive incontinence of urine occurring in middle aged women without history of any trauma except childbirth, and the numerous methods, both medical and surgical, for its control, and describe and illustrate a simple operative procedure, which can be done under local anesthesia. Of twenty cases done sixteen have been cured. The paper is a valuable one.

10. This paper is an extremely interesting and practical piece of work on a so far little explained subject. The authors conclude from extensive evidence furnished from the literature and experiment that an extensive network of lymph-vessels and channels exists in the mucosa and submucosa, in the external coats of the bladder and the ureters and in the entire structure of the kidney. This network in the bladder anastomoses freely with the lymphatics of the bladder at the one end, and with the lymph apparatus of the kidney at the other end. They believe that an ascending infection travels through this lymphatic system, not through the blood vessels of the ureter nor through the lumen of the ureter. They give ample reason why the blood vessels and the ureter can be excluded as avenues of ascending infection. The paper is well worth careful reading and is suggestive in the way of treatment.

11. The author makes the sweeping but more or less convincing statement that there is no organ or tissue in the whole body that may not be at the mercy of infection that gains entrance through or around the teeth.

14. Johnston suggests that epileptic seizures may be due to the deprivation of the system of the products of the pituitary gland and suggests feeding these patients on this substance, with gradual withdrawal of bromides.

15. Codman's article on the product of a hospital is of very practical importance. [E. H. R.]

THE LANCET.

MARCH 28, 1914.

1. *WHITEHOUSE, H. B. *Hunterian Lectures on the Physiology and Pathology of Uterine Hemorrhage.*
2. BLUMFIELD, J. *Anesthetics and Diagnosis.*
3. *NEVE, A. *An Operation for Hemorrhoids; a Review of Eight Hundred and Fifty Cases.*
4. *COOK, J. B. *An Investigation into the Effects of Drinking-water upon the Causation of Dental Caries in School Children.*
5. TRESIDDER, A. G. *A Case of Malarial Coma Lasting Forty-six Hours; Recovery.*

1. In an article illustrated with numerous plates, Whitehouse in the first part of the Hunterian Lecture discusses uterine hemorrhage and its physiology and pathology. He has done numerous experiments on the coagulation time of blood at menstrual periods and of the menstrual blood itself as to the presence of antithrombin in this and in the endometrium. He describes numerous other experiments along this line.

3. Neve reviews his results on 850 operations for hemorrhoids.

4. Cook believes that excessively soft water is a causative factor of importance in producing dental caries in children and should be borne in mind along with other causes. [J. B. H.]

BRITISH MEDICAL JOURNAL.

MARCH 28, 1914.

1. *MACWILLIAM, J. A., AND MELVIN, G. S. *Systolic and Diastolic Blood Pressure Estimation, with Special Reference to the Auditory Method.*
2. *MURRAY, J. R. *Systolic and Diastolic Blood Pressures in Aortic Regurgitation.*
3. ROBINSON, H. B. *Three Cases of Pancreatic Cyst.*
4. BEVERS, E. C. *A Renal Cyst Causing Chronic Intestinal Obstruction.*
5. *RAEBURN, J. A. *Subcutaneous Injections of Emetine in Pulmonary Tuberculosis.*
6. ROSEBRUGH, A. M. *An Economical Treatment of Inebriates.*
7. *SHUFFLEBOTHAM, F. *The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. Lecture IV.*

1. The writers discuss the significance of diastolic blood pressure as compared to the variable systolic. They describe the auditory method, its application, the apparatus used and the estimation of systolic and diastolic pressures by this method. They believe that its simplicity, care and rapidity are points in its favor. In brief, this method consists in using a tambour, connected with the ears as a stethoscope, placed underneath the pressure cuff and over the brachial artery above the bend of the arm. Pressure is applied so as to shut off the pulse entirely, then as it decreases a sharp thud is heard at the exact time that the blood first goes through the artery.

2. Murray, using the auditory method, discusses blood pressure in aortic regurgitation under varying conditions.

5. Raeburn, endorsing the results of Flandin and Joltrain as to the value of emetine in hemorrhage in consumption, also found it of great value in cases of bronchitis alone, in cases presumably tuberculous but without bacilli in the sputum, but of little value in open cases of pulmonary tuberculosis with bacilli present.

7. Shufflebotham believes that miners' nystagmus is due to 4 causes: (1) defective illumination in the mines, (2) the peculiar cramped position of the miners, (3) refractive errors frequent among the miners themselves, and (4) the frequent injuries which miners sustain to themselves and to their eyes. He discusses treatment of the eyes and of the general condition and preventive measures in detail.

[J. B. H.]

THE PRACTITIONER.

APRIL, 1914.

1. *BARR, J. *On the Functions of the Thyroid, the Suprarenal and the Pituitary Glands.*
2. *ROLLESTON, H. D. *Chronic Splenic Anemia and Banti's Disease.*
3. *TOOTH, H. H. *On the Indications for Surgical Treatment in Intracranial Tumor.*
4. *EDMUNDS, A. *Ectopia of the Bladder.*
5. PORTER-PARKINSON, J. *Difficulties of Diagnosis in Disease in Children.*
6. SMITH, E. B. *Some Points in the Diagnosis and Treatment of Epilepsy in Childhood.*
7. PARDHY, V. M. *Nephroptosis (Movable Kidney, Floating Kidney, Dropped Kidney).*
8. MACADAM, W. *The Significance of the Urinary Excretion of Creatin and Creatinin.*
9. DUNCAN, C. H. *Autotherapy in the Prevention and Cure of Purulent Infections.*
10. SIBLEY, W. K. *The Treatment of Eczema.*
11. WHITING, M. S. *The Extraction of Diabetic Cataract.*
12. MCCANN, F. J. *The Recent Progress of Gynecology.*
13. YEARSLEY, M. *A Retrospect of Otology.* 1913.
14. GORDON, W. *The Value of the Cardiac Sign in the Diagnosis of Gastric Cancer.*
15. CORBEN, C. *Schlatter's Disease.*

1. This is a general clinical article reviewing the functions of various ductless glands, although presenting nothing new.

2. Rolleston in a scholarly way, goes over the subject of chronic splenic anemia and its separation from Banti's disease and other conditions. Very little is known in regard to its pathogeny except that as splenectomy cures the disease, the spleen must in some way be responsible, and that there is *not* any active haemic infection or intoxication at work; also that splenic inadequacy is not the cause of the anemia. He discusses in detail the ways in which the spleen may cause the anemia. Later on he seems to contradict himself by stating that (*a*) in splenic anemia a chronic infective or toxic process has (*c.f.* above) its headquarters in the spleen, which thereby undergoes fibrotic enlargement; (*b*) that the large spleen mechanically causes gastric hemorrhage and the resulting anemia, and that poisons from the spleen eventually cause cirrhosis of the liver. He describes the clinical picture, blood changes, etc., symptoms, differential diagnosis, etc. There is an elaborate list of references.

3. Tooth, in a long paper, records his study of 497 cases of cerebral tumor which have come under observation and treatment at the National Hospital in London from 1902 to 1911. He first discusses these tumors and operations topographically, those occurring in the forebrain and those in the cerebellum. He describes the urgent signs and symptoms, the nature of the operation, site, sequelae of the first and second stages of such operations and results. The paper is a most valuable contribution to the subject.

4. Edmunds, in a long paper with excellent plates, discusses ectopia of the bladder. He believes that plastic operations to merely reconstruct the bladder are unsatisfactory and that transplantation of the base of the bladder is better than the separate transplantation of the ureters. The wound should be left freely open. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 12. MARCH 24, 1914.

1. GAUPP, R. *The Scientific Importance of Wagner's Case.*
2. BECKER, T. *The Diagnosis of Paranoia.*
3. *RACH, E. *Anatomical Types of Tuberculosis in Children Which are Recognizable by Radiographs.*
4. GRUBER, G. B. *Recent Studies on the Pathology of Trichinosis.*
5. RIETSCHEL, HEIDENHAIN AND EWERS. *Fever in Infants, Following Chloride Infusions.*
6. GABASTON, J. A. *A New Method for Freeing the Placenta.*
7. *KLEIN, W., AND FRÄNKEL, E. *The Effective Elements of the Wassermann Antigen.*
8. FRIIS-MÖLLER, V. *An Atypical Case of Tuberculosis.*
9. BERNDT, F. *The Operative Treatment of the Severest Forms of Flat-foot.*
10. LEXER, K. *Wounds from Impalement.*
11. GOLDSCHMIDT, M. *The Mechanism of Resorption of the Lens.*
12. MORPUGO, F. *A Case of Retinal Hemorrhage Following Calomel and Salvarsan.*
13. SCHWAB. *Yatren Gauze, a Dressing for Surgical Wounds.*
14. HIRT. *The New Psychological Institute in the University of Munich.*
15. KLEIN, G. *The Measurement of Ray Dosage in Radium and Mesothorium Treatment.*

3. Rach has controlled radiological findings in the lungs of children with tuberculosis by autopsy. He believes that it is possible to differentiate six different anatomical types of the disease by a combination of x-ray and physical findings. These are: (1) Ghon's primary lung focus, where isolated tuberculous foci are found with or without tuberculosis of the bronchial glands. (2) Tuberculosis of the glands, where isolated shadows are seen in the region of the bronchial lymph nodes. (3) Hilus tuberculosis of two forms, (*a*) arising from an intrapulmonic focus and extending along the lung hilus, (*b*) due to extension inwards from a primary infection originating from tuberculosis of the lymph nodes of the hilus. (4) Miliary tuberculosis of the lungs. (5) Tuberculosis of sucklings, characterized by extensive cavity formation. (6) Apical tuberculosis analogous to that found in adults.

7. At present most serologists use alcoholic extracts of normal organs as antigen in the Wassermann reaction. It has been found empirically that lecithin, oleic acid, and cholesterin have certain specific antigenic properties. This has led to attempts to isolate the specific chemical antigen from these various extracts.

Klein and Fränkel have made chemical and serological studies with an alcoholic extract of beef heart. They believe that the most powerful antigenic action was obtained by the combined effect of lecithin with a small amount of an unrecognized soapy substance and free cholesterin. Whether more complicated substances have to do with the reaction will be demonstrated by future studies. [R. F.]

No. 13. MARCH 31, 1914.

1. *ENGELHORN, E., AND WINTZ, H. *A New Skin Reaction for Pregnancy.*
2. ESCH, P. *The Dosage and Effect of Intramuscular Injections of Pantopon-Skopolamin During Labor.*
3. CERTEL, C. *Laudanum in Labor.*
4. ZWEIFEL, E. *The Technic of Sacral Anesthesia.*
5. *FUNK. C. *The Prophylaxis and Treatment of Pellagra According to the Vitamin Studies.*
6. ROST, G. A. *Vaccines in Gonorrhea.*
7. HEURLIN, M. *A Simple Method for Differentiating by Culture True Diphtheria from Pseudo Diphtheria Bacilli.*
8. MAYER, W. *The Serum Diagnosis of Epilepsy.*
9. JOSEPH, J. *Plastic Operations on the Nose.*
10. VULPIUS, O. *Lengthening of Tendons.*
11. SCHLIMPERT, H. *Teaching with Blumreich's Mannikin.*
12. MÜLLER, M. *The Value of Legalizing Prostitution.*
13. RUPPRECHT, K. *The Alcoholic Criminals among the Youth of Bavaria.*
14. MUCK, O. *The Cause of a Characteristic Torticollis in Lesions of the Posterior Fossa of the Skull Which Encroach on the Limitations of This Cavity.*
15. SCHARNKE. *The Treatment of Delirium Tremens.*
16. KRÖNIG, E. *An Attempted Suicide with Digalen.*
17. WEISZ, E. *A Simple Apparatus for the Treatment of Ankylosed Wrist-Joints.*
18. BERGER, D. H. *The Practical Work of a German League for Medical Literature.*

1. Engelhorn and Wintz have made "Placentin" analogous to tuberculin and luetin, to be used for the intracutaneous diagnosis of pregnancy. Its method of preparation is not sufficiently simplified for general use, so Engelhorn and Wintz do not describe it. It is an extract of placenta which is injected intracutaneously according to Pirquet's method. The results are either sharply positive or negative within forty-eight hours, and are most marked thirty-six hours after injection. Among seventy pregnant women, the reaction was positive in every case, as early as the seventh or eighth week after conception, and as late as the tenth month. In fifty-three non-gravid patients the reaction was negative in every case except one, which was that of a six-year-old child. The reaction did not remain positive after the fourth day of the puerperium.

Engelhorn and Wintz conclude that a larger series of cases must be tested before too much is claimed for the specificity of the "Placentin" reaction. They feel justified, however, in publishing these suggestive results.

5. Funk believes that beri-beri is caused by the eating of rice which has been polished free of its "vitamin" bodies, and that pellagra is due to the ingestion of polished maize. He comments upon the frequency and high mortality of pellagra in this country. Between 1907-1912 there were twenty thousand fatal cases.

Funk considers that the prophylaxis and treatment of pellagra is simple. Maize, only, which has been untreated should be eaten, and in any pellagra zone other "vitamin" containing vegetables should be cultivated, or if this is impossible, they should be imported duty free. For treatment, foods should be given in abundance which contain "vitamin" substances, such as uncooked fruit-juice and milk, butter, and for carbohydrates, potatoes. [R. F.]

Miscellany.

EXPERIENCE WITH EUGENICS IN PHILADELPHIA.

The following item from a recent issue of the Philadelphia *Bulletin* is another evidence of the impracticability of so-called eugenic marriage laws, at least in their present form. The failure of the experiment in Philadelphia is analogous

to that in Detroit, Mich., and for a fundamental reason well stated in the last paragraph of the quotation:

"After an eight months' trial, Chief Clerk Ferguson of the local marriage license bureau virtually admits that the amended marriage license law partly based on 'eugenics' is a failure, when he says that only one case has arisen in Pennsylvania since the act became effective, where an applicant was refused a permit for disabilities classified under it. He points out that the weakness of the statute in practice lies in the fact that the clerks have no right to deny a license so long as the applicants give technically 'satisfactory' answers to the prescribed questions concerning health and physical condition, even though the replies may be palpably untrue.

"In other words, about the only result accomplished by the change in the old laws has been to impose increased burdens on the clerks and to subject all applicants to annoying and embarrassing personal questions, without preventing the unfit from entering matrimony. It is inconceivable that every one of the thousands of persons who have applied for licenses in the State since the first of last August should have been free of the impediments recited by the law either in the matter of bodily soundness or in ability 'to support a family' as the clause is worded, if the statistics compiled by the sociologists and eugenists are right in their conclusions regarding the dissemination of disease and other forms of wretchedness.

"The ineffectiveness of the Pennsylvania law is not remarkable, however, for the same result has been reported in other States where even more drastic legislation has been attempted. It only goes to prove what the eugenic theorists entirely overlook, that when couples make up their minds they are suited to each other no mere law is going to prevent them from mating."

INFANT MORTALITY IN NEW ZEALAND.

A PAMPHLET on methods of reducing infant mortality, as illustrated in the work of the New Zealand Society for the Health of Women and Children, has recently been published by the children's bureau of the United States department of labor. In her introduction to this pamphlet, Miss Julia C. Lathrop, chief of the bureau, writes as follows:—

"The infant mortality rate of New Zealand has been for some time recognized as the lowest of any country in the world, and it is stated that recent further reductions are due in large measure to the activity of this society. As an example of its value, the consul general states that the work of the society has reduced infant mortality in Dunedin, a residential city of about 60,000 inhabitants, 50% during five years, from 1907 to 1912. Because of the absence of adequate birth and death registration in the United States, the infant death-rate of this country as a whole is unknown, but estimates tend to show that it is at least twice the rate of New Zealand, which the registrar general of that country reported in 1912 to be 51 per 1,000. New Zealand, like certain of our states, is a young and vigorous country with a scattered population and with no large cities, and there is every reason to believe that similar volunteer effort in this country would produce similar results. In view of the marked and growing interest in the preservation of infant health in the smaller cities and rural communities of the United States, I believe that the account of the methods of the New Zealand society is especially timely. It will be seen that public interest is strongly enlisted in its efforts. Seventy volunteer committees in as many districts maintain the educational and nursing work in conjunction with the central office, and the government itself assists in various ways. The detailed statement which follows is not offered for the purpose of urging exact reproduction of the New Zealand organization, but rather to stimulate interest in working out whatever methods are practicable locally for securing the same results."

The following points are summarized as conclusions from this study of conditions in New Zealand:—

"1. The recognition that not only in cities but in country districts provision should be made for instructing mothers in the care of babies; teaching young girls all practical methods of home making, including baby hygiene and feeding; giving proper hospital care to sick babies, and maintaining conferences where mothers can have their children examined and can thus learn of any bad condition before it has progressed beyond recovery.

"2. The need of definite knowledge of just what the problem is in the different communities. This knowledge it is not possible to obtain in many districts of the United States, because, on account of the incomplete registration of births and deaths, this country does not know how many babies are born and how many die. Therefore, to urge the passage of good registration laws in states in which such laws do not exist and to force efficiency in administering the registration laws in other states is a definite requirement.

"3. The need of coöperation between volunteer and public health authorities in reducing the infant mortality.

"4. Recognition of the merit of the methods of the New Zealand Society for consideration by club women and others in making plans for infant-welfare campaigns in rural communities in the United States.

"5. The value of methods which include districting the territory in a state and organizing local committees having supervision of the welfare work; the employment of nurses whose

services are chiefly educational; newspaper publicity, and the publication of pamphlets and other literature on hygiene and the care of babies and children, containing advice vouched for by the best medical authorities and expressed in direct, simple methods."

It would seem that methods which have so well succeeded in the community of New Zealand might to advantage be adopted to meet the same problem in our own country.

Correspondence.

A PHENOMENON OF ARTIFICIAL RESPIRATION.

22 APRIL, 1914.

Mr. Editor: Some time ago, I communicated to you in a letter (which you courteously did me the honor to publish in the issue of your JOURNAL for Sept. 26, 1912, Vol. clxvii, p. 453) a phenomenon of artificial respiration, which I had then observed for the first time, and which consisted in the passage of air completely through the alimentary tract of a badly asphyxiated newborn baby undergoing mouth-to-mouth insufflation.

Last week I repeated this observation in the case of a baby born by Caesarean section, in whose attempted resuscitation I had the privilege of assisting. Mouth-to-mouth insufflation was employed, as in the previous case, and within a few moments the passage of air-bubbles from the rectum, synchronously with each insufflation, was observed. The sphincter was completely relaxed, and the amniotic fluid had been considerably stained with meconium *in utero*.

The constant passage of air through the alimentary tract caused considerable abdominal distention, which was partly relieved by passing a catheter into the stomach. The distention, however, did not seem to embarrass the cardiac action, which continued regular and of good quality. For a time the baby breathed fairly well, but seemed to suffer from inspiratory dyspnea, such that mouth-to-mouth insufflation again became necessary, with the same air-bubble phenomenon as before.

After two and one-half hours, the baby's condition became so precarious that a low tracheotomy was done in the hope of relieving the respiratory obstruction. A catheter was then passed through the tracheotomy tube, and oxygen forced directly into the lungs. For a time the baby's color improved; but it failed to establish spontaneous respiration and died with the ultimate decline and cessation of the heart-beat.

Unfortunately no autopsy was permitted, so it could not be determined whether the obstruction was due to an enlarged thymus, as was suspected. In any event this second occurrence of the air-bubble phenomenon in a fatal case of infantile asphyxia seemed to me of sufficient interest to call to the attention of your readers. I am inclined to believe that it could occur only in cases in which the asphyxia had caused complete intestinal paralysis, and, therefore, is always of very serious prognosis.

Very truly yours,

ROBERT M. GREEN, M.D.

78 Marlborough St., Boston.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-second meeting of the New England Pediatric Society will be held at the Boston Medical Library at 8.15 p. m., on Friday, May 1, 1914.

The following papers will be read:

1. "The Fasting Metabolism of Infants," Hans Murschhauser, Ph.D., Düsseldorf, Germany.
2. "Some Developmental Causes of Poor Health in the Child: Their Importance to the Adult," John Bryant, M.D., Boston.
3. "Myotonia Congenita: With Report of Cases," Charles Hunter Dunn, M.D., Boston.

Light refreshments will be served after the meeting.

C. A. PRATT, M.D., *President.*

FRITZ B. TALBOT, M.D., *Secretary.*

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS.—A meeting of the Society will be held at the Hotel Westminster, April 30, 1914. Addresses through the courtesy of the Surgeon-General of the Army by Lieut.-Colonel Henry A. Shaw and Major George M. Ekwuzel of the Medical Corps of the Army. Subject: "Medicine and Surgery in the United States Army."

Dinner at 6.00 p. m. Address at 7.30 p. m.

J. H. STEVENS, M.D., *Secretary.*

NATIONAL CONFERENCE OF TUBERCULOSIS SECRETARIES.—The second annual meeting of the National Conference of Tuberculosis Secretaries will be held at the New Willard Hotel, Washington, D. C., May 7 and 8, 1914.

THE MISSISSIPPI VALLEY CONFERENCE ON TUBERCULOSIS to be held in Memphis, May 12, 1914, at time of National Conference of Charities and Correction. Conference called by A. E. Kepford, State Lecturer of the Department of Tuberculosis of the Iowa State Board of Control, and James Minnick, Secretary of the Illinois State Association for the Prevention of Tuberculosis.

RECENT DEATHS.

DR. CHARLES HUNT PORTER, who died on April 17, in Taunton, Mass., was born at Quincy Mass., in 1871. He obtained his preliminary education at the Adams Academy in that city, and received the degree of A.B. from Harvard College in 1892. He first studied theology, and was ordained to the ministry in 1895. He then entered the college of Physicians and Surgeons, of Columbia University, from which he received the degree of M.D. in 1908. He practised for a time at Springfield before settling in Taunton. He is survived by his widow.

DR. CHARLES PICKERING PUTNAM died at his home in Boston, April 22, 1914, aged 69 years. He was born in Boston Sept. 15, 1844; was graduated from Harvard College in the class of 1865 and from the Harvard Medical School in 1869. He became a Fellow of The Massachusetts Medical Society in this year. He was one of the founders of the Boston Medical Library in 1875 and had served on its executive committee and committee on library and finance continuously until his death.

DR. M. M. JOHNSON, who died at Hartford, Conn., March 15, 1914, was born at Malone, N. Y., April 21, 1844. He graduated from Brown University in 1870 and received his M.D. degree from the University of New York. He was one of the foremost surgeons of New England for many years, writing numerous articles for medical journals.

ASSIGNMENTS OF NAVY SURGEONS.

DR. F. W. F. WIEBER, medical director at the Charlestown (Mass.) Navy Yard, has been detached from duty there and detailed to the Portsmouth (N. H.) Navy Yard.

DR. N. J. BLACKWOOD has been assigned to duty at the Charlestown Navy Yard.

Original Articles.

RESULTS OF THE SWIFT-ELLIS INTRADURAL METHOD OF TREATMENT IN GENERAL PARESIS.*

By A. Myerson, M.D., Taunton, Mass.,

Clinical Director and Pathologist, Taunton State Hospital.

One of the most important contributions of 1913 in the field of syphilis was the introduction by Swift and Ellis[1] of intradural injections of salvarsanized serum. Since the technique and underlying principles of this treatment have been detailed by the original workers, and subsequently described by Hough[2] and others in reports upon cases treated by the method, it is superfluous, in this report on the fate of cases treated, to describe the technique used. It may be said that it was in all respects similar to that used by Swift and Ellis. A brief preliminary statement of the results obtained in the treatment of these cases was published in the annual report of the Psychopathic Hospital.[3] At that time I stated that the treatment could influence the course of paresis in that it was possible by using it to change the Wassermann reaction from positive to negative, and materially to reduce cell count and globulin content. In a later paper dealing with albumen content of the spinal fluid I have made some further observations on the subject, and now wish to supplement my previous report by a more detailed account of the further history of the individuals treated by this method.

The material was drawn from the cases at the Psychopathic Hospital, Boston, Mass. All here reported are paretics. Some of the cases have been under observation and treatment for a year, others for a less time, but enough treatment was administered and examinations were made frequently enough to establish in my opinion the conclusions which will be presented at the end of this paper.

Following are the cases, with a brief account of the initial condition, the record of treatments administered, the results in spinal fluid and blood, clinical changes and condition at present. It will be understood that only noteworthy changes or conditions are here recorded. The Wassermann test in each case and at all times was made by the Harvard Medical School, Department of Neuropathology. The cell count, globulin and albumen content tests were made by myself except in a very few cases.

* Being Psychopathic Hospital Contribution 1914.6, the previous contribution 1914.5 by M. C. Jarrett entitled "The Function of the Social Service of the Psychopathic Hospital, Boston," to appear at a later date in the Boston Medical and Surgical Journal.

Case 1. No. 11341. T. J. L., male, aged 40 years. Entered the Psychopathic Hospital Jan. 3, 1913. *Physical signs.* Irregular pupils, right greater than left; light reaction of left pupil, 0; right pupil, slight reaction to light; convergence reaction present. Arm reflexes, much exaggerated. Knee jerks equal and much exaggerated. Ankle jerks, absent. Homolateral and contralateral adductors, present. Right cremaster, slight; left, O. K. Right abdominal, slight; left, O. K. Speech impaired. Mentally: Delusions of persecution, slight memory defect, orientation slightly impaired as to place. Euphoric, verbose and irrelevant in conversation. Wassermann reaction in blood and spinal fluid positive. Thirty-five cells per cubic mm.; globulin, markedly increased; albumen, markedly increased. Diagnosis, unqualifiedly, general paralysis.

Treatment. Feb. 15, .6 gr. neosalvarsan.

Feb. 15, serum shows 10 cells, glob. +++ positive, alb. +++ positive. No intradural treatment given.

Feb. 27, .9 gm. neosalvarsan.

March 1, intradural treatment, 30 c.c. serum. Spinal fluid at this time shows 5 cells, globulin, positive.

March 11, .9 gm. neosalvarsan. Wassermann reaction in serum negative. Globulin ++; no cells. Wassermann in spinal fluid positive.

March 17, 30 c.c. serum intradurally.

April 9, .9 gm. neosalvarsan.

April 11, 30 c.c. serum injected. Spinal fluid at this time ++0 for globulin, +++ albumen, 0 cells. Wassermann reaction, serum slightly positive.

April 16, Wassermann reaction in spinal fluid from previous lumbar puncture reported negative.

April 22, .9 gm. neosalvarsan.

April 24, 30 c.c. of serum intradurally. Slight blood in spinal fluid, therefore no accurate examination possible.

April 26, Wassermann reaction, spinal fluid from the above specimen negative.

May 1, Wassermann reaction, serum negative.

May 7, 45 gm. neosalvarsan.

May 10, 20 c.c. serum. Wassermann reaction, serum negative. Glob. ++0, alb. ++0, few cells.

May 21, .9 gm. neosalvarsan.

May 24, 20 c.c. serum intradurally. Wassermann reaction, serum negative. Wassermann reaction, spinal fluid positive.

May 29, Wassermann reaction, serum negative.

June 25, .9 gm neosalvarsan

July 10, .9 gm. neosalvarsan.

July 12, Wassermann reaction, serum negative.

Aug. 6, .9 gm. neosalvarsan.

Aug. 9, Wassermann reaction, serum.

Aug. 13, Wassermann reaction, spinal fluid negative.

Aug. 26, .9 gms. neosalvarsan.

Aug. 30, 30 c.c. serum intradurally.

Aug. 30, Wassermann reaction, serum negative.

Sept. 3, Wassermann reaction, spinal fluid negative. Glob. ++0, alb. ++0, no cells.

Treatment was discontinued at this time. During this time the patient's mental condition did not particularly change. He was still somewhat irrelevant—foolish rather than demented, euphoric, but with no definite delusions or hallucinations. Physical signs not changed.

Oct. 24, patient showed evidence of slight confusion during the last few days, restless, speech defect more marked.

Oct. 27, patient had a slight convulsive seizure. In November he had very many general convulsions.

Physical Examination at the Present Time. He lies in bed, has lost weight and is very weak. His speech defect is more marked. The physical signs have not altered except for the fact that the cremasterics and abdominal reflexes have disappeared. He is disoriented, has no appreciation whatever of the situation, is euphoric, talks continually of what he is going to do in his work and has big plans for the future.

Wassermann reaction in blood, positive. Spinal fluid examination. Wassermann reaction, +, albumen, globulin and cell count not reported.

Summary. Patient received ten treatments of Neosalvarsan in less than one year's time. He received in addition seven intradural treatments of salvarsanized serum. The results have been mainly limited to the disappearance of the Wassermann reaction, to the reduction in the globulin, albumen and cell count. It will be seen, as I have pointed out in a paper on Albumen Content in Spinal Fluid, previously cited, that the Wassermann reaction and the cell count have been the most variable of the reactions. As far as his mental condition goes, many a paretic without treatment will show as stationary a course for a year. In other words, there has been no obvious effect of the treatment on his mental or physical condition. Following the discontinuance of the treatment by a little over a month, there came on what usually portend the final stages of paresis, namely, convulsions. At the present time the picture presented is that of a much deteriorated paretic in bad physical condition.*

CASE 2. No. 11378. C. S., male, aged 45 years. Tabes of long standing. Entered the hospital on Feb. 1 in an exceedingly maniacal, euphoric condition. The physical signs in this case were those of marked tabes, ataxia, absent reflexes, Argyll-Robertson pupils, history of lightening pains, etc., plus a mental condition of extreme psychomotor activity, euphoria, ideas of grandeur.

Wassermann reaction in the blood, positive. Wassermann reaction in the spinal fluid, positive. Since there was a slight mixture of blood in the spinal fluid, globulin, albumen, and cell count were not made at that time.

Treatment. Feb. 8, .55 gm. neosalvarsan.

Feb. 13, .9 gm. neosalvarsan.

Feb. 17, 30 c.c. of serum injected intradurally. Patient struggled and bloody spinal fluid was obtained, which was of no value for diagnosis.

Feb. 27, .9 gm. neosalvarsan.

March 1, 30 c.c. of serum. Wassermann reaction + in the spinal fluid Glob. +++, small cell increase — 5 cells.

Mar. 11, .9 gm. neosalvarsan.

March 14, 30 c.c. of serum. Wassermann reaction, blood positive. No cells in spinal fluid; no glob. Alb. +, increased moderately. Wassermann reaction, March 11, serum positive.

Patient became so boisterous, so troublesome and destructive that it was found necessary to transfer him to the Boston State Hospital, main department. His condition showed no appreciable change. He was still maniacal, euphoric. The physical signs showed no abatement. He was later transferred to Worcester.

Summary. Four treatments of Neosalvarsan; three intradural injections within the space of six weeks. No improvement clinically. Serum unchanged. Spinal fluid showed no cells, no globulin, but in this case there is no record of the original cellular and globulin content of the spinal fluid because of contamination with blood.

CASE 3. No. 11409. H. N., male, aged 39 years. Admitted Feb. 14, 1913. Came from Boston City Hospital where he had been for three weeks. Marked delusions of persecution, hallucinations of sight and hearing, intensely agitated, excited and restless. Argyll-Robertson pupils. Knee jerks present, moderately active. Ankle jerks present, moderately active. Wassermann reaction, blood positive. Wassermann reaction, spinal fluid positive. Cell count, 50 per cubic mm.; alb. +++, glob. +++. Clinical diagnosis, general paralysis.

After patient had been in the hospital a very short time his delusions and hallucinations vanished, so that by the middle of March, or a month after his admission, he was completely clear, a fact which cannot be ascribed to his treatment since betterment had commenced before the treatment was instituted. A note dated Feb. 26, before the treatment was instituted, says, "Insight is quite re-established."

Treatment. Feb. 27, .45 gr. neosalvarsan.

March 1, 30 cc. serum. Spinal fluid not examined.

March 15, 20 c.c. serum injected in spinal canal. (Serum was removed one hour after salvarsan was injected. Delay in intradural treatment due to other causes.) Spinal fluid examination at this time—no cells, glob. ++0; alb. ++0. Wassermann reaction spinal fluid, +. Wassermann reaction in blood +.

April 3, .9 gm. neosalvarsan.

April 5, 30 c.c. serum. Cells 30, glob. +++.

April 16, .9 gm. neosalvarsan.

April 19, 30 c.c. serum intradurally. Wassermann reaction, serum negative. Glob. ++0. Red cells in spinal fluid.

April 23, spinal fluid removed on the 19th reported negative.

April 30, .9 gm. neosalvarsan.

May 1, 30 .cc. serum intradurally. Cells 25, glob. ++0. Wassermann reaction, serum suggestion of positive. Spinal fluid, negative. Reported on May 7.

May 15, .9 gr. neosalvarsan. Wassermann reaction, serum slightly positive

May 21, Wassermann reaction, spinal fluid slightly positive.

May 28, .6 gr. neosalvarsan.

June 4, 20 c.c. serum intradurally.

May 31, Wassermann reaction, serum negative.

June 4, Spinal fluid slightly positive. At this time the patient was discharged on visit—condition improved.

* Since this paper was written this patient has died. Autopsy showed characteristic signs of general paresis.

June 30. Patient returned to hospital. Insomnia, which was now his principal complaint, increased upon leaving the hospital to such a point that he found it necessary to return.

July 5, .9 gr. neosalvarsan.

July 8, Wassermann reaction, serum slightly positive.

July 10, 30 c.c. of serum injected intradurally.

July 12, Wassermann reaction, spinal fluid negative. Cells 0; glob., slightest possible amount; alb., moderately increased.

July 30, .9 gr. neosalvarsan.

Aug. 2, Wassermann reaction, serum suggestive of positive.

Aug. 13, .9 gr. neosalvarsan.

Aug. 16, Wassermann reaction, serum negative. Spinal fluid not reported on.

Aug. 28, .9 gr. neosalvarsan.

Aug. 30, Wassermann reaction, serum negative. At this time treatments were discontinued.

Sept. 13, Wassermann reaction, serum slightly positive. Spinal puncture done Sept. 13, cells, 50; glob., positive; alb. increased. Wassermann reaction, spinal fluid positive.

Nov. 7, Wassermann reaction, spinal fluid positive. Lumbar puncture at this point, 1 cell; globulin, tested by Nonne's method, positive; by Noguchi's method, negative; albumin, slightly increased. (These last two lumbar punctures and examinations done by W. F. Cook of the Psychopathic Hospital.)

Dec. 24, Patient was transferred to the Taunton State Hospital. Diagnosis at that time, general paralysis of the insane. Condition reported improved.

Physical examination at the Taunton State Hospital on December 26, 1913: Patient is pale and has marked tremor. Argyll Robertson pupils. Arm reflexes are markedly increased. Knee-jerks are moderately active—right, active. Left Achilles is abolished; right, slight. The left abdominal reflex is lively—right, abolished. Cremasterics, active. Sensation in tact.

Mental Examination at this time: Patient is well oriented as to time, place and person. Grasp on the situation is good. Insight is fair. He knows his disease and knows its usual course. Remembers most of the disease, and gives the story of his life in a coherent fashion, and is accurate on details. He insists that he has inherited syphilis. Delusions are of a hypochrondriacal nature. He insists that he hears the bugs creeping around in his brain, feels them jumping from one place to another, feels them burrowing under his skin, and when a specimen of his blood is shown he insists that he can see the bugs in the blood. He holds his hands to the light and examines them by the hour to see if the bugs are there. No other delusions, and no hallucinations except the one regarding the bugs.

Wassermann reaction in the blood, positive. Wassermann reaction in spinal fluid doubtful. No cells seen; very slightest trace of globulin; very moderate increase in albumen.

Summary. Remission occurred before treatment was instituted. Following the treatment it will be noted that the Wassermann reaction was the most variable sign, disappearing both in blood and spinal fluid, reappearing. The cell count has been abolished once, but showed great variability, and it is especially noteworthy that at the end of the treatment the number of cells was 50. A month and a half later, *without any treatment*, the cells diminished to one, and at a still later examination they disappeared entirely. The globulin, it will be noted, disappeared on two occasions, and was, however, relatively more constantly present than the cells or Wassermann. The albumen increase was the most constant sign of all and showed the least fluctuations, although it had nearly reached the normal at the last examination.

Patient is to receive further treatment, but it is to be said that his physical condition is gradually growing worse. He looks paler than he did on entrance to the Psychopathic Hospital, and he is abjectly miserable. Moreover, the psychosis seems to be traveling malignly for he is now distinctly deluded regarding the "bugs," a symptom not noted until lately.

CASE 4. No. 11452. S. H. S. Male. Admitted Feb. 25, 1913, voluntary patient; aged 36 years, attorney by occupation.

Fairly good family history. Patient has always been nervous. He drank moderately and was an inveterate smoker. Thirteen years ago he had the initial lesion and went to Hot Springs for treatment. Treatment followed this, irregularly. Admitted to the bar four years ago, not successful.

Present Illness dates back from Dec. 1, 1912. Despondent, downcast and unhappy. He has made two attempts at suicide, once by taking trional, and again by bichloride of mercury. No hallucinations or delusions. Sleepless, no appetite. Arms and legs feel numb. Immediate cause of psychosis said to be the breaking off of his engagement with a young woman he intended to marry. This the patient did to protect the young woman.

Physical Examination. Right pupil larger than the left. Argyll-Robertson on left—slight reaction to light on right side. Knee jerks and ankle jerks lively. Arm reflexes exaggerated. Sensation not disturbed. Periosteal reflexes active. Abdominal reflexes, uppers gone, lowers, O. K. Cremasterics present. Wassermann reaction, serum positive. Spinal fluid positive to Wassermann, 40 cells, globulin increased, albumen increased.

Treatment. March 3, .45 gr. neosalvarsan.

March 7, serum, 30 c.c. Wassermann reaction, spinal fluid positive.

March 19, .9 gr. neosalvarsan.

March 21, serum, 30 c.c. No cells, glob. slight. Wassermann reaction, spinal fluid positive.

April 3, .9 gr. neosalvarsan.

April 5, 30 c.c. serum. Glob. +++, 25 cells, alb. increased

April 16, .9 gr. neosalvarsan.

Apr. 19, 20 c.c. serum intradurally. Wassermann reaction, serum positive. Glob. ++, cells 30, Wassermann reaction, spinal fluid negative.

April 22, .9 gr. neosalvarsan.

April 26, spinal fluid positive.

April 30, .45 gr. neosalvarsan. Wassermann reaction, serum negative.

Physical examination at this time disclosed no great difference from previous examination. Men-

tal examination disclosed no definite signs of a psychosis. At this time, however, he found himself examining words that came to his mind in something the following manner. For example, the word "echo" as it came to his mind in sentences brought forth questions as follows: "What is an echo?" "What does the word 'echo' mean?" "Are there many echoes?" "Do woods give echoes?" His mind would busy itself answering those questions, and at the same time he recognized the absurdity of his own activity. He stated that this symptom was most constant and that it had no particular emotional content, that is, no particular words or sets of ideas were continually reacting. Still very sleepless and can see no betterment in his condition. Has perfect insight. Is willing to be treated and thankful for attention given him. Is on the whole rather hopeless.

Concerted and persistent effort will usually elicit a correct reply to any question in educational matters, but the patient's first tendency is to say, "I don't know" to anything at all difficult. In other words, he thinks his memory is gone. This symptom is important in view of later developments.

May 10, Wassermann reaction, serum slightly positive.

May 21, .9 gr. neosalvarsan.

May 24, 30 c.c. serum intradurally.

May 24, Wassermann reaction, serum positive.

May 29, Wassermann reaction, serum suggestive of positive.

June 4, .6 gr. neosalvarsan.

June 7, Wassermann reaction, serum positive. 20 c.c. intradurally.

June 11, Wassermann reaction, spinal fluid slightly positive. Glob. 0, cells 0, alb. slightly increased.

July 2, .45 gr. neosalvarsan. Wassermann reaction, serum positive.

July 7, Wassermann reaction, serum positive. Spinal fluid, not examined for cells or globulin.

July 10, Wassermann reaction, spinal fluid negative.

July 16, .45 gr. neosalvarsan. Wassermann reaction, serum slightly positive.

July 19, 30 c.c. intradurally. Wassermann reaction, serum slightly positive. Wassermann reaction, spinal fluid moderately positive.

July 30, .45 gr. neosalvarsan.

Aug. 13, .6 gr. neosalvarsan.

Aug. 14, 30 c.c. salvarsanized serum, last treatment. Spinal fluid, Wassermann reaction slightly positive.

Aug. 16, Wassermann reaction, serum slightly positive.

Aug. 26, Wassermann reaction, serum negative.

Sept. 13, Wassermann reaction, serum negative.

Dec. 16, transferred to main department of Boston State Hospital.

Physical Examination. Pupils show same changes as before, as do the other physical signs. Condition, unimproved.

Jan. 20, examined by present writer. Physical signs as above stated. Patient is thinner, however, than when at the Psychopathic Hospital, and the mental examination shows a distinct change in the emotional tone. While he still claims that there is no hope for him, his whole attitude is euphoric. Voice is loud, manner is breezy, and he laughs in a silly manner at times. He states in an irrelevant fashion that his brother is coming to see him and bring him some candy and cake, whereas such a visit when patient was first seen at the Psychopathic would have been passed over by him as too trivial to mention to the physician. Now he mentions it with great gusto. He says, "My memory is as good as it ever was. I remember every little thing in detail. My memory is excellent." This is in marked contrast with his attitude at the Psychopathic when he was complaining continually of his memory. The facial movements are somewhat more stiffened and exaggerated. Otherwise he gives no definite mental signs of general paresis. Wassermann reaction, serum negative. Spinal puncture refused.

Summary. Patient received eleven doses of neosalvarsan intravenously and seven intradural injections. Wassermann reaction in serum and blood became negative at times. At one time the globulin disappeared as did the cells. He showed no improvement, however, in his clinical manifestations although for a long time he showed no downward change. When the treatment was discontinued, there seemed to have followed an emotional deterioration, manifested at the present time by a mild euphoria and triviality. On the whole it is possible that the treatment in this man's case halted the disease for a short time, but that it did not seriously alter its progress is manifested by the impaired physical condition at the present time, and the gradual, if not obvious, mental breakdown, this despite the fact that Wassermann reaction at present is negative.

The next case is recorded in this series because the patient had four injections into the spinal canal and refused further treatment in this manner because of the violent reaction. However, he had ten doses of neosalvarsan, and offers an excellent comparison with the other cases.

CASE 5. No. 11415. J. H. S., male, aged 48 years, married.

Family History. Negative. In 1904 the case was diagnosed as locomotor ataxia at the Boston City Hospital. The gait has been unsteady for years—pains in the legs. About six years ago patient became rather irritable and has grown more so of late. One month ago he called his wife and said that he had a vision, and told her to hide all the knives. Cried a good deal.

Physical Examination. Argyll-Robertson pupils. Arm reflexes present, knee and ankle jerks 0. Diminished sensation to pain in a belt-like fashion around the chest. Memory defect noted in recalling the three last governors. Arithmetical tests are poorly answered. No hallucinations or delusions noted. Emotional tone somewhat euphoric. For a diagnosis of paresis, there are but few mental signs, but the history of irritability, the memory defect and the euphoria point decidedly that way. Tabes is without a doubt present. Wassermann reaction in blood, positive. In spinal fluid, suggestive of positive, 40 cells; globulin much increased.

Treatment. Feb. 20, .45 gr. neosalvarsan.

Feb. 22, 25 c.c. serum.

Feb. 24, report on blood taken before intradural injection, serum negative.

March 6, .9 gr. neosalvarsan.

March 8, 30 c.c. serum; 0 cells, glob. ++. Wassermann reaction, serum.

March 19, .9 gr. neosalvarsan. Wassermann reaction, serum negative.

March 22, 12 c.c. serum. Wassermann reaction, spinal fluid negative No cells, glob. +, alb. moderately increased.

April 9, .9 gr. neosalvarsan.

April 12, 30 c.c. serum. Glob. ++, cells 0. Spinal fluid negative.

From this time the patient refused any intradural treatment.

April 16, .45 gr. neosalvarsan.

April 22, .45 gr. neosalvarsan.

April 26, Wassermann reaction, spinal fluid negative. Glob. very slightly plus, cells 7.

April 30, .45 gr. neosalvarsan. Wassermann reaction, serum negative.

May 7, .45 gr. neosalvarsan.

May 10, Wassermann reaction, serum negative.

May 21, .9 gr. neosalvarsan. Wassermann reaction, serum negative.

May 24, Wassermann reaction, serum negative.

June 4, .9 gr. neosalvarsan. Wassermann reaction, serum negative.

Record does not contain treatment after this. The symptoms did not change except that the patient claimed to have less pain in his legs. In December he was transferred to the main hospital; condition clinically unimproved.

Jan. 20. Examined by writer. Much thinner than upon entrance to the hospital. Optic atrophy marked. Memory fairly good. Euphoria extremely marked. Said to the examiner, "See how well I walk now days," and proceeds to demonstrate. Gait is extremely ataxic and unsteady. Diagnosis by staff of Boston State Hospital, tabo paresis. Wassermann reaction, blood negative. Wassermann reaction, spinal fluid, not made since lumbar puncture was not permitted.

Summary. Early case of paresis—late case of tabes. Four intradural injections with changes after the first intravenous so far as Wassermann reaction is concerned. This reaction disappeared from the blood and spinal fluid almost immediately upon treatment, but seems to have been due to salvarsan more than any other factor in the treatment. Despite its absence, the condition of the patient showed no definite improvement, and shortly after treatment was stopped his condition became distinctly worse. Here too the Wassermann reaction is negative.

CASE 6. No. 11737. F. M. L., male, aged 39 years, married. Entered May 6, 1913. The occasion of this patient's commitment to the hospital was a sudden outbreak in the house of a friend. He threw an Indian club out of the window, and then chased a small boy who had taken it down the street, screaming in a maniacal fashion. Family history negative. Had a high school education. He had been a spendthrift, a heavy drinker, and has led a dissolute life. At first he denied syphilis, but later admitted having had it years ago. At the time of entrance he was clearly oriented. Memory seemed intact. No hallucinations or delusions were elicited. He was somewhat euphoric. Continually attempted to leave the hospital. Rather verbose in answers. Otherwise showed no distinct mental symptoms.

Physical signs were carefully noted at that time. The left pupil was slightly larger than the right, both reacted moderately to light, consensual and distance. Cranial nerves of the face were good. No paralysis anywhere. Slight tremor of the hands. Reflexes of the arms were equal and moderate. Knee jerks, equal and active. Ankle jerks equal and active. No Babinski, Gordon or Oppenheim. Adductors moderate. Cremasters and abdominals O. K. In other words, physical examination was almost entirely negative. Blood serum positive to the Wassermann reaction to syphilis. Spinal fluid showed moderate pressure, albumen much increased, Wassermann negative, globulin by Nonne's method very slightly positive, likewise by Noguchi's method; cells mostly reds, of which there were perhaps 1000 in the field. No blood had been drawn upon puncture, and these cells it was evident had not come from the puncture since the slightly yellowish tinge of the spinal fluid could not be centrifuged out. This peculiar spinal fluid had its explanation a very short time afterward in the following:

May 11. During the morning the patient was confused, restless, and attempted to get out. At 12.30 he suddenly lost consciousness, became rigid, and showed some clonic movements. Recovered in about thirty minutes. During this time there was a double Babinski, more on the right side, rigid pupils, absence of cremasteric and abdominal reflexes. At six p.m. he was up and around, very euphoric, and markedly confabulating. He told how he had been out all day in an automobile and spoke of the very elaborate meals which he had had. Showed marked loss of memory for recent events. Was disoriented for time and place. Gave irrational answers to questions on educational matters. Lumbar puncture done at this time shows that spinal fluid was under high pressure, was yellowish in color, contained very many red cells, although no blood had been drawn by the puncture, and as before, the color could not be centrifuged out.

The Wassermann reaction in the blood was still positive. At this time there was positive Wassermann reaction of spinal fluid. The globulin was distinctly positive.

From this time for a period of one month, the patient had marked euphoric delusions. He was to marry a nurse of the ward. He had $50,000, a motor boat, and a Pierce-Arrow automobile was to take him and his bride all over the country and to Europe. He denied that he was married, and said most emphatically that the nurse, who was possessed of all the virtues of her sex both in person and character, had promised her hand to him as soon as he could get out. He had schemes for making money. Gradually this euphoric state disappeared.

Treatment. May 14, .45 gr. neosalvarsan.

May 21, .45 gr. neosalvarsan.

May 24, 20 c.c. serum intradurally. Wassermann reaction, serum positive.

May 28, .9 gr. neosalvarsan. Wassermann reaction, serum negative.

May 31, 30 c.c. serum intradurally. Wassermann reaction, serum negative.

June 6, .6 gr. neosalvarsan.

June 7, Wassermann reaction, serum slightly positive. 20 c.c. serum injected intradurally. Spinal fluid at this time showed still the slight

yellowish tinge, although no red cells were to be seen. This yellowish tinge persisted for some time, and was probably due to hemoglobin and to dissolved coloring matter from the red cells. Finally it disappeared and the fluid became clear.

June 11, 45 gr. neosalvarsan. Wassermann reaction, spinal fluid negative.

June 14, Wassermann reaction, serum positive.

June 19, .9 gr. neosalvarsan.

June 21, 30 c.c. serum intradurally. Wassermann reaction, serum negative. Spinal fluid, suggestion of positive.

July 2, .9 gr. neosalvarsan.

July 7, 30 c.c. serum intradurally. Spinal fluid at this time, 5 cells, glob. slightly +, alb. distinctly increased. Suggestive positive Wassermann. Serum, slightly positive.

July 16, .9 gr. neosalvarsan.

July 19, 30 c.c. serum intradurally, 10 cells; glob. +++, alb. increased. Wassermann reaction, serum negative; spinal fluid, negative.

July 30. .9 gr. neosalvarsan.

Aug. 2, Wassermann reaction, serum positive.

Aug. 9. Another physical and mental examination was made. He does not remember the two weeks following the convulsion. Following that, however, his memory is clear. He laughs at his former delusions concerning the nurse and likewise those concerning his wealth. He spontaneously states that he had been losing memory for some time before he came to this hospital, likewise losing his ambition, and that he was cranky at home. No pains. Occasional dizzy spells. Physical examination at this time shows very important changes. The right pupil showed almost no reaction to light. The left showed prompt consensual and light reaction. The right arm reflex is lively, greater than the left. Right cremasteric is greater than the left. Knee jerks are equal. Right ankle jerk is active. Left ankle jerk is very slight. No Babinski, Gordon or Oppenheim. Mental examination showed no distinct defects by the Binet-Simon and Healey tests. By careful psychological tests for memory defect and by the ordinary psychiatric examination, nothing of pathological nature was found. He took an active part in the social life of the ward and was one of the leading spirits amongst the patients.

Aug. 13, .9 gr. neosalvarsan.

Aug. 16, 30 c.c. serum intradurally. Wassermann reaction, serum slightly positive. Wassermann reaction, spinal fluid negative.

Sept. 13, serum positive. Treatment discontinued.

Oct. 29, note was made that his condition was unchanged.

Dec. 24, discharged to the Taunton State Hospital. Diagnosis, general paralysis. Condition, unimproved.

At the time of discharge from the Psychopathic Hospital, the patient had commenced to become grandiose again. He exhibited eccentricities of conduct and is said to have a hysterical outburst. This outburst, the patient describes differently. He states that he had a numb feeling in his head and a numb feeling in the right hand; that while he knew the words he was to say and use, he could not utter them. Neither could he write, although he says he understood writing when it was given to him. When he attempted to make himself understood by the physicians, he spoke nonsense, and realized that it was nonsense. By his description, there was a cerebral condition of some kind, transitory in nature, marked by motor aphasia and confusion, with numbness of the right hand.

Physical examination in Taunton State Hospital on Dec. 26. At this time the pupils are Argyll-Robertson on both sides. Tremor of tongue. Blunting of sensation of right side of face. Arm reflexes as before. Left Achilles diminished. No Babinski, Gordon and Oppenheim. Cremasterics present. Left upper and lower abdominal reflexes absent, right upper present, right lower absent. Ophthalmoscopic, negative.

Mental examination at this time shows verbosity, pomposity, euphoria with delusions of grandeur, mostly of a sexual character. He is to marry Miss M., a nurse at the Psychopathic Hospital, and they are to go on a long trip together. He is to furnish a home. She is the most beautiful and virtuous of women, etc. Orientation is intact. Memory is good. No hallucinations. Acts superior to his environment. Somewhat irritable and a trouble-maker amongst the patients. Wassermann reaction in spinal fluid positive. Albumen, moderately increased, globulin moderately increased. Thirty lymphocytes. Serum positive.

Summary. This patient, at first considered to be a case of cerebral spinal syphilis, is now considered a general paretic. First, the history of cerebral accident, second the euphoria, grandiose ideas, etc., third, the gradual development of Argyll-Robertson pupils, and the gradual change in reflexes; fourth, the appearance of the four reactions in blood and spinal fluid plus the albumen increase in the latter. He has shown fluctuations in the Wassermann reaction in blood, and there was present in the spinal fluid evidence of a hemorrhage which has made its way into it. Undoubtedly the first flare-up was accompanied by a hemorrhage into some part of the brain, and it is very probable that the second development of grandiose ideas started with some cerebral attack. It is to be especially noted that the Argyll-Robertson pupils developed in this patient's case despite the use of salvarsan and the intradural method of treatment, and for that reason I think this case is of crucial importance in determining the value of the Swift-Ellis method.

CASE 7. No. 11537. J. M., male, aged 37 years. Entered the 25th of March. Family history negative. Early life of patient uneventful. Married, four children, no miscarriages. Two years ago he was thrown from a horse and broke three ribs—recovered. Somewhat later he had "trouble with his head," of indefinite kind—recovered. About Christmas before entrance he began to act queerly. Became careless, worrisome, nervous, could not sleep, forgetful of recent events, and at times irritable and untidy.

Physical Examination. Argyll-Robertson pupils, exaggerated reflexes, some unsteadiness of gait. Mentally: Disoriented for time, no grasp of surroundings, poor memory, loss of educational facts, some euphoria, retardation in answers, and impaired insight. Serological examination showed positive Wassermann in blood, positive Wassermann

in spinal fluid. One hundred cells in spinal fluid, markedly increased globulin and albumen.

Treatment. April 9, .9 gr. neosalvarsan.

April 12, 30 c.c. of serum intradurally.

April 16, Wassermann reaction, spinal fluid positive. Fifty cells, albumen and globulin in marked excess.

April 22, .45 gr. neosalvarsan; 30 c.c. serum intradurally.

April 26, Wassermann reaction, blood and spinal fluid positive.

May 7, .9 gr. neosalvarsan.

May 10, Wassermann reaction, serum slightly positive; 20 c.c. serum intradurally. Wassermann reaction, spinal fluid positive; 30 cells, glob. somewhat reduced, alb. much increased.

May 21, .9 gr. neosalvarsan. Wassermann reaction, serum negative.

May 26, 30 c.c. serum intradurally. Spinal fluid, Wassermann positive.

June 4, .9 gr. neosalvarsan. Wassermann reaction, serum positive.

June 7, 30 c.c. serum intradurally. Wassermann reaction, spinal fluid positive; 50 cells, globulin and albumen in excess.

June 25, patient becoming rapidly demented. Now lies in bed most of the time. Occasionally gets up and tries to put on other patients' clothing. Does not know the way to his bed and is very untidy. No insight whatever. No grasp on surroundings. Memory for recent and remote events much worse. Treatment discontinued. Transferred to Boston State Hospital, main department, on June 25, 1913. Died Jan. 23, 1914, after severe convulsions. Was bedridden most of stay in hospital.

Summary. Despite intensive treatment—five doses of neosalvarsan and five intradural injections within two months, patient grew rapidly worse, and within one year after onset, died of general paralysis. This case needs no further comment except that on entrance he did not seem worse than many other paretics who last longer.

Case 8. No. 11636. A. V. D., male, aged 57 years. This case, although not receiving many intradural treatments, received several doses of salvarsan, followed later by intradural treatments, despite which his condition rapidly grew worse.

Family history is good. Personal history not remarkable, except that he has had no children although married many years. A chancre occurred thirty-five years ago. The first symptom was bladder trouble in August of last year, incontinence of urine since that time. Insomnia. History of paralytic attack two days before entrance.

Physical Examination. Pale, thin man. Aortitis. Argyll-Robertson pupils. Very lively ankle and knee jerks. Homolateral and contralateral adductors. Skin reflexes absent. Speech defect.

Mental Examination. Poor grasp on surroundings; recent memory defect although remote memory seems good; educational tests well answered except where recent events are concerned. He is rather choleric and irritable, but on the whole formal and courteous. Flow of thought not remarkable. No insight. Wassermann in blood and spinal fluid, positive. Cell count 30, glob. and alb. increased.

Treatment. April 22, .9 gr. neosalvarsan.

April 29, seems to be slightly improved. Answers questions fairly well. Hard to please in the choice of books, which he continually asks for and reads.

April 30, .9 gr. neosalvarsan.

May 1, Wassermann reaction, serum positive.

May 15, .45 gr. neosalvarsan.

May 17, Wassermann reaction, serum positive.

May 28, .45 gr. neosalvarsan.

May 31, Wassermann reaction, serum positive. Fifteen c.c. intradurally. Wassermann reaction at this time positive in spinal fluid. Spinal fluid shows increased cell count, alb. and glob. increase.

June 11, .45 gr. neosalvarsan.

June 14, 30 c.c. serum intradurally. Wassermann reaction, serum positive. Wassermann reaction, spinal fluid positive.

July 19, Wasermann reaction, serum positive; .45 gr. neosalvarsan.

July 20, 30 c.c. serum intradurally. Wassermann reaction, spinal fluid positive; 30 cells, glob. increased.

Aug. 26, .9 gr. neosalvarsan.

Aug. 30, Wassermann reaction, serum positive.

At this point treatment was discontinued. Patient's condition was growing worse, and he seemed weaker and more demented. Bladder trouble was worse. It was impossible to arouse him to long continued conversation although when he did answer, his replies were usually correct and well expressed. Grasp on surroundings very poor.

Sept. 13, note says, "Patient has grown progressively worse. Died today at 4.15 a.m." Autopsy disclosed the usual cerebral and cord findings of general paresis.

Summary. A man who received seven doses of neosalvarsan, and three doses of intradural therapy, despite which he grew rapidly worse and died. There was nothing in the clinical history of his case to distinguish it from that of many another man in the late fifties who acquires paresis. Such cases usually last but a short time, and the salvarsan and intradural treatment probably had no influence either in hastening or retarding his death.

Five other cases treated by the intradural method are not here recorded. Of these, one was a tabetic, and, therefore, his record is not pertinent to the question of the value of the use of the intradural method in paresis. It may be stated, however, that it seemed to do but very little good in his case, and even the gastric crises and lightning pains, which it is claimed this treatment helps, were but little affected.

The second case has been diagnosed as cerebral spinal syphilis although it is my opinion that the patient is suffering from general paresis. This patient showed marked improvement, and left the hospital in a state of complete remission. However, it is well to remark that later she wrote me a note on a gorgeously emblazoned New Year's card, although the date of its sending was November 1st. Her judgment of the appropriate, at least, does not seem to have been restored to the normal.

The third patient was a case of precocious cerebral spinal syphilis who made a very good recovery. In his case, however, mercury and the iodides were used *ad lib.* and the part played by the neosalvarsan is in question. However, it undoubtedly helped, but the disease is one that does not resist treatment.

The fourth was a congenital tabetic who received only three treatments and cannot be included in this series.

The fifth was a paretic who stayed in the hospital for two treatments only. He showed no improvement, but is not here recorded because the time of treatment was insufficient.

Summary of Cases. Of these eight cases, all undoubted pareties, mostly under forty and only one over fifty, the following has been the fate: Two died (Nos. 7 and 8 in the series).* Of these, one received five doses of intradural therapy, and the other three doses. The course of both was steadily "down hill," and there is nothing in their clinical histories to indicate that their treatment had the slightest effect upon the disease. In these two cases it is to be noted that there was no change in the Wassermann reaction.

A third (No. 6 in the series), although not definitely a paretic patient on onset of treatment, and having no definite physical signs during treatment, developed in its course the Argyll-Robertson pupils and differences in his tendon reflexes. The case is a critical one for the therapy because this patient was young, robust and received treatment very early in his disease. Far more important than the fluctuation of the Wassermann reactions in his history is the appearance of these ominous physical changes. They mark a distinct progress in the lesions of paresis. Despite the clearing up of the mental signs, his case can be said to have advanced steadily, despite intensified treatment. Moreover, the disappearance of the mental signs has to be considered more in the light of a remission than as due to treatment. It is to be noted that at the onset of his disease the Wassermann reaction in spinal fluid was negative. At the present time, it is positive, so that in this respect, too, he is worse than he was. Moreover, the patient, while maintaining a robust appearance, has a pallor which William N. Graves,[5] of St. Louis describes as cachectic, that is, a sickly look with no apparent loss of hemoglobin. He looks distinctly sicker than on entrance to the hospital and before the beginning of his treatment.

Another case (No. 2 in the series) was discharged unimproved. He received only three doses of salvarsanized serum intradurally, and four doses of salvarsan. His case may be dismissed as being indifferent in its application to the question whether or not salvarsanized serum is of benefit to paresis. It is true that the spinal fluid showed changes, but how far these are related to definite improvement is one of the points at issue.

The fifth case (No. 5 in the series) showed very definite serological changes. Wassermann reaction early became negative and remained negative, but it is to be remarked remained negative, although the intradural treatments had been discontinued and only neosalvarsan intravenously administered. There was no definite clinical improvement manifested. Patient said that the pains were less, but as a matter of fact this seems to have been due rather to euphoria than to actual diminution of the symptom, for at different times it was noted that he was suffering from pain. The salvarsan probably caused an enteritis in his case for a bloody diarrhea was noted several times. After the treatment was discontinued the deterioration and downward progress became marked. Nevertheless, the Wassermann reaction in blood at present is negative.

In a general way what has been said of the above case will apply to the next two cases (No. 1 and No. 4 in the series). In both of these cases the Wassermann reaction was exceedingly variable, in general favorably influenced by the treatment. Moreover, the cell count, the globulin and albumen all were reduced at various times by this treatment. There was, however, no abatement in physical or mental signs. The patients did not look better, feel better or act better. Following the discontinuance of the treatment, the progress downward was marked, showing that the treatment in no wise stopped the disease, although it may have checked it for a time. It would almost seem as if its discontinuance accelerated the normal progress, if such a term can be employed, of the disease. At any rate one cannot claim much for a treatment which when employed as consistently and frequently as in these cases, after it has been discontinued for three months, finds the patients far worse off than when the treatment was initiated.

The last case (No. 3 in the series) has shown what might seem to be the most favorable results of the treatment. A maniacal patient, deluded and hallucinated, all the reactions present in blood and spinal fluid, for a time showed a complete remission, and following the discontinuance of the treatment developed ony a few hypochondriacal ideas. Wassermann reaction at the present time is doubtful, cells and globulin almost vanished, albumen greatly reduced. At first glance this would seem to be a splendid recommendation for the treatment, but it is to be noted against this view that the remission started before the treatment was instituted and was almost complete when the first dose of neosalvarsan was administered. In a disease so eminently one of remissions, one must be exceedingly careful in interpreting what one finds as the result of treatment. There are cases on rec-

* Since this paper was written No. 1 of these cases has died, making a total of three deaths. This is a larger ratio of mortality than is usual in the first year of paresis.

ord in the Taunton State Hospital where the remission had lasted two and more years, and undoubtedly such histories can be more than duplicated by any other hospital Moreover, the patient looks worse than he did when treatment was first started His color is not so good—it is more yellowish than formerly He is more listless and despondent

CONCLUSIONS.

1. Patients receiving this form of treatment show changes probably as the result of it. These changes are mostly limited to the disappearance of the Wassermann reaction and alterations in chemical-cytological composition of the spinal fluid. On the whole, no clinical improvement can be recorded which cannot otherwise be accounted for.

2. As has been stated in a previous paper, the order of changes is somewhat as follows: The Wassermann reaction seems to be the most variable—the first to disappear, the least stable. The difficulty in evaluating the Wassermann reaction lies mostly in the fact that the results obtained by various laboratories vary according to the ability of the technician and serologist. In the case of these patients, all the work was done in one laboratory, the same method used throughout, and thus a fairly standard Wassermann reaction can be recorded.

The cell count seems to have been the next most variable constituent. It seems to be profoundly affected by the treatment, but a reduction must not be taken too optimistically. It will be noted that in the case of H. N. (No. 3 in the series) the cell count was 50 after treatment was discontinued. Later on, without treatment, it dropped to 0 for no well defined reason. Since the examiner was the same in both cases and used the same technic and care, it is probable that the record is faithful to the facts at each time.

The globulin is perhaps a little less variable than the cell count, that is it does not diminish so much under treatment, and it rarely completely disappears.

Finally, the albumen content is the most constant of all, and is least affected by treatment. (For details regarding the albumen test, see writer's paper in the *Journal of Nervous and Mental Diseases.*)

Homer Swift,[8] in a discussion before the New York Society of Neurology, stated that in his opinion the cell count was the most variable of the reactions, and the Wassermann next, both differing, however, very little from each other in their constancy. Next in permanency he found the globulin test. He does not record the albumen content. It will be seen that his results differ but little from my own, there being merely a transposition in relation between Wassermann reaction and cell count. Since the difference between the two is not very great, his findings and mine are essentially the same, except that I have added to the test recorded the total albumen content.

3. The Wassermann reaction probably is not nearly so important a criterion of improvement or recovery as it is frequently held to be. This statement is substantiated by the following facts:

First, It seems to be capricious in its appearance and disappearance. That is to say, there is no ascertainable relationship between it and the clinical conditions of the patient.

Second, As is shown in No. 4 and No. 5 of this series, the patients' condition may gradually grow worse both physically and mentally and the Wassermann reaction remain negative. This fact is perhaps the most important of those disclosed in the investigation of the treatment.

Third, It is generally assumed that a change for the better is accompanied by a Wassermann negative—a change for the worse, by a Wassermann positive. Whatever the Wassermann reaction may mean, it does not measure the full scope of the paretic process. It represents a diagnostic feature of great importance, but we must learn to separate the diagnostic facts from the pathogenetic facts.[7] The treatment here recorded changes the process of the disease in that part of it from which originates the alterations leading to the appearance of the Wassermann reaction, but unfortunately these alterations are but a part of those occurring in the total disease process.

4. What has been said of the Wasermann reaction applies in a lesser degree to the chemical and cytological changes. It is probably true that the criterion of recovery or progress at present must be in the field of the clinical manifestations.

5. Finally, it must be stated that the theoretical grounds upon which this treatment is based do not seem to me to be valid. It is assumed that because the Wassermann reaction is most constant an hour after the administration of salvarsan, therefore the blood at that time contains more anti-bodies. This, of course, is by no means certain, for the meaning of the Wassermann reaction is unknown. Furthermore, it seems to be the opinion, shared by Swift and Ellis, that the nervous system is inaccessible to medicament administered in the usual channels. One hears the term "inaccessibility of the nervous system" quite frequently, yet a little reflection shows there is no such thing. The effects of opium, chloral, bromide, alcohol, strychnia, and certain of the toxins of infectious diseases seem notably to affect the brain and nervous system, and to do this through the blood stream. The appearance of headache following all kinds of bodily disorders contradicts the assertion of the inaccessibility of the nervous system most emphatically. Further, it is assumed that the introduction of medicament into the cerebro-spinal space can affect the brain favorably and locally. Undoubtedly such administration does affect those local conditions,

which are largely meningeal, as, for example, cerebro-spinal meningitis, cerebro-spinal syphilis, gummatous conditions, etc. But in paresis the bulk of the lesions are deep and spirochetes have been discovered only in the cortical substance itself. Now the current of the spinal fluid, if there be a current, is not into the cortical substance or brain tissue. Whatever be the origin of this fluid, whether secreted by the choroid plexus, whether dialyzed from the blood stream as claimed by Metrazat, or the product of the pial endothelium, its direction is from the cortical substance and the brain tissue in general, rather than towards it. So that logically intradural treatment for paresis would fail, and the only reason that the salvarsan does not cure in the case of paresis is because there is either a lack of some intermediary substance to unite it with the spirochete or else because the spirochete has acquired new resistance by reason of its long stay in the body of its host.

Moreover, despite the discovery of Noguchi, that the spirochete pallida is present in the brain of paretics it is probable that the sum total of the paretic process is something more than chronic syphilis, or at least a degenerative process has been added, which it is difficult to stay.

There seems to be another reason for the failure of salvarsanized serum in this treatment. Granted that its theoretical basis be correct, and that the introduction into the intradural spaces can locally and favorably influence general paresis, the amount introduced seems utterly insufficient. Of all the blood in the body, 50 c.c. are removed one hour after salvarsan has been administered. Such an insignificant fraction of the total amount of the blood present can contain only a very small amount of salvarsan. Its introduction seems *a priori* to be adding but little of local treatment to that of the salvarsanized blood stream itself.

However, the treatment merits further trial. It should not be administered to every paretic in the hospital, as some men seem to feel, but should be used on selected groups of cases. It would be very wise not to hold out hopes to the relatives or to the patient, because the result will probably be disappointment. Experience with this treatment teaches much about paresis and leads to the hope that there is a cure for the disease since we now know that it can be profoundly affected, but as far as my experience goes, the Swift-Ellis method is not the looked-for cure.

I wish here to thank the Massachusetts State Board of Insanity for financing this research, and also to express my obligation to Drs. E. E. Southard, H. P. Frost, and A. V. Goss, in charge respectively of the Psychopathic, Boston State and Taunton State Hospitals, for their assistance. For a zealous coöperation that never failed in the midst of a heavy hospital routine, I hereby express my earnest gratitude to Dr. Roger R. Rupp, of Copley, Pa., formerly interne at the Psychopathic Hospital.

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HIP FRACTURES AND THEIR TREATMENT.*

By Frederic J. Cotton, M.D., Boston.

For a century past, at least, fracture of the hip has been the dread of surgical practitioners, and much has been written about treatment. What has been done, or claimed, of late years as to the treatment of hip fracture has, however, largely ignored an important distinction that our predecessors, beginning with Astley Cooper, understood pretty clearly. Let us put the distinction in this way—the danger of nonunion applies only to fractures close to the head of the femur. (Figs. 3, 4, 5, 6, 14, 15, 16, 17.)

We know that impacted fixed fractures close to the head often unite, and may achieve bony union. (Figs. 10 and 11.) Loose fractures at this point stay loose. (Figs. 13, 14, 15.) How far the distinction between intra and extracapsular fractures is important, we do not know even now, but the clinical rule as given above will hold.

What has confused the question of results so long is the fact that "inter-trochanteric" fractures proceed to bony union despite surgical pessimism, despite the worst treatment. (Figs. 21 to 25.) In such fractures the possibilities of deformity are grotesque, (Fig. 23) but nonunion is negligibly rare.†

Non-union in fractures of the neck proper on the contrary is not rare, and even in cases showing apparent impaction at first, this impaction not infrequently gives way in the early weeks of treatment despite careful routine fixation. (Figs. 3, 6, 15, 16, 17.)

At best there is always some bone absorption in these cases, even when such absorption is associated with the repair process. The original impaction is modified, even though a serviceable entanglement of fragments persists. (Figs. 10 and 11.)

The methods of treatment advocated have, in a large measure, lost sight of the working classification here hinted at.

For practical purposes this classification, and

* Read for the writer by Halsey B. Loder, M.D., before the Essex North District Medical Society, October 8, 1913.

† Murphy has shown good plates of one case of non-union at this point. I have yet to meet with a case personally.

the results attained in the different classes, may be given as follows:

Fractures in the trochanteric region. These, as already noted, almost invariably unite by bone, though often with great deformity, and not rarely with some resultant disability, from sheer distortion. (Figs. 7, 8, 9, 21, 22, 23, 24, 25, 26, 27, 28, 29.)

Fractures of the neck proper.

(a) *Cracks*: They do well unless extraordinarily badly handled. (Fig. 1.)

(b) *Solid* Impactions: They unite with shortening and with more or less deformity in eversion, but solidly. The clinical results are fair to good. (Fig. 2.)

(c) *Imperfect* Impactions: The common type. In these cases, the impaction, more or less solid, tends to perpetuate a deformity in shortening and eversion, more or less extreme; in some cases the impaction gives away, or is broken up even without accident or obvious neglect of precaution. These cases then fall into the class of loose fractures to be considered presently. (Figs. 3, 16, 17, and 18.)

As a rule, however, these imperfect impactions hold until the break unites, and, in many cases at least, unites by bony union, leaving more or less disability but only *from distortion.*

This result, often the best we can hope for, is not ideal, and in the cases occurring in the more vigorous class of patients, young or old, the question, constantly recurring of late, is whether correction of deformity may not be attained without risking the prospect of firm union.

(d) *Loose fractures* of the neck. These cases differ in no way, to start with, from the impacted cases, save in the *accidental absence* of *impaction.* Unfortunately loose hip-fractures at the neck, ("sub-capital" fractures as Ruth calls them), do not unite by bone, are very apt to fail of even a serviceable fibrous union, and usually enough give a hip that is not very useful. (Figs 5, 12, 13, 14, 15, 18, 19, and 20.)

So much for the natural history of these cases, without treatment, or under average routine treatment.

The time available does not allow of proof of statements already made, but the statements rest not only on impressions, but also on the careful investigation of a considerable series of cases by the writer, (with the assistance of Dr. Andrew Cornwall) shortly to be published. Scudder's published results confirm our data.

Now, as to treatment: We have to choose from—

(a) The old routine; fixation, with or without traction.

(b) The Shaffer-Whitman method.

(c) Senn's pressure method.

(d) Phillips-Maxwell-Ruth method.

(e) Cotton impaction method with fixation in abduction.*

(f) Operative treatment.

There is something to be said for each method listed, though no one, apparently, is using Senn's scheme today. But not one of the six methods is a desirable routine for all cases. Routine must vary with the case.

There are cases occurring in feeble and aged individuals in which we must almost entirely neglect treatment of the fracture to save the patient's life, and many cases that are going to die under any treatment, or under no treatment. There is no doubt that this class of cases is real, but *over-regard* for the *patients' safety* is apt to lead to *under-regard* of the *problem* of *treatment.*

Most cases of hip-fracture can be treated with regard to the lesion—treated surgically—and are apt to be more rather than less comfortable, if furnished proper support. There can be no rule in this matter, and no statement may be made safely save that the number of cases in which surgical treatment may not be carried out is small.

Leaving this small class of cases aside, the factor *first* to be considered is the lesion.

First, as to the fractures of the base of the neck,—the extra-capsular type. In these, our problem concerns two things—avoidance or correction of deformity, and fixation of the fragments till repair is solid. We need have no fear in these cases of breaking up the impaction. The deformity to be guarded against is practically always: first, eversion; secondly, a diminution of the angle of the neck with the shaft,—a coxa vara deformity. (Figs. 21, 24, and 25.) Simple rotation takes care of the first, the second is to be corrected by traction alone, or traction with abduction. The success of this correction is to be appraised by measurement of the length of the leg taken from the anterior superior spine to the inner malleolus, or to the heel. These correction manoeuvres can hardly be done without anaesthesia—at least I have tried it but once, but the anaesthesia may be very light. If anaesthesia is not practicable, we must accept imperfect correction.

Now as to fixation: We have to guard not only against immediate recurrence of displacement, but against the tendency to slow yielding to muscle pull, even after union has begun. (Figs. 23, 24, 25.)

The usual routine, sand bags, or long splints, or moderate weight traction, do not accomplish this.

We may work effectively in this direction in three ways. We may adopt the method known as Whitman's, (though Shaffer originated it back in 1886), the abduction method. Shaffer

* Reported in *American Journal of Orthopedic Surgery*, May, 1911.

combined direct pressure on the trochanter with abduction. The method as now employed is pure abduction. It rests on the theory that if the femur is abducted far enough the limit of motion at the hip is reached, the upper fragment stops, and the shaft is further abducted till it comes into normal relation to the upper fragment. This is approximately true at least, and more than that, forced abduction brings the long, strong adductors taut, and so drives the fragments into contact. (Fig. 26.) This brings in another factor, the possibility of fragments slipping by under this pressure. (Fig. 27.)

I have felt safer, before abducting, in correcting the deformity by rotation and traction, then *impacting* lightly with a *mallet*, then carrying the leg into abduction. In this way the chance of slipping seems to be obviated. I have done it in a number of cases and it seems to work out well. (Figs. 28, 29.) These fractures are apt to be splintered more or less, therefore the force used in impacting must be guarded, but in no case has any harm been done. I do not claim that even in this way *perfect* reduction can be obtained, or that we have positive assurance against the slow development of coxa vara.

It is fair, however, to claim very satisfactory results from abduction alone. (Figs. 26, 27, 30.)

In favor of the abduction position is another fact little dwelt on, namely: the avoidance of contracture. In all hip-fractures, the tendency is for the leg to pull over into adduction, and when the patient begins to get about, the adduction contracture is a very serious and often permanent factor in the lameness. (Fig. 31.) This the abduction treatment avoids, a rather important item.

Now there is an altogether different way of going about the handling of these cases, namely,—the so-called "anatomic" method of Ruth of Des Moines, used earlier by Phillips and by Maxwell, a method we in the East know little about. I have lately had a chance to see Ruth apply it, and to discuss the matter with him. He applies it to everything, which seems irrational to me. As yet, all his specimens and tested results shown are of fractures at the *base* of the neck. There is something in the method; the results seem good, and it may be as good as the impaction-abduction scheme I am using *for these inter-trochanteric cases.*

The treatment consists of manual reduction in flexion, (to relax the ileo-psoas) then downward traction to do away with the shortening, then the application of substantial weight-traction in the line of the limb, and lateral traction on the thigh next the groin. There is no reason why this traction treatment may not be carried out in moderate abduction. It looks more comfortable than a plaster spica, and it may be that Whitman and I must abdicate in Ruth's favor for *this class* of *basal* fractures.

Now as to the fractures of the neck proper, the intra-capsular type. In this class of cases I am going to leave Ruth's method out of consideration; for this class it is *not* anatomic so far as I can reason, and it seems inevitable that lateral traction must tend to separate the fracture surfaces; a disadvantage in these cases far out-weighing the question of improved position, for our chance of union depends upon *fixed* and *absolute contact.* Moreover, I have not yet seen any real analysis of results in *this class* of cases under this routine.

Neither do I agree with Whitman entirely, so here is my notion of the matter.

There are cases in which there is only a crack, or a negligible displacement only; others, more often seen, in which there is deformity, but not enough to justify the anaesthesia almost essential to any accurate correction.

These cases I am perfectly content to let alone, holding the legs fixed (usually with sand bags) in an abduction sufficient to ensure against adduction contracture. Only in a minority of the cases has it seemed to me justifiable to use the plaster spica for fixation, except in cases calling for actual correction of position.*

There remain the many cases of true neck-fracture (so-called intra-capsular fractures) in which there was no real impaction at the start, or in which the impaction has given way spontaneously, or in which the x-ray shows the impaction to be poor and the surfaces badly fitted, or in which there is really considerable eversion, or shortening.

In all these cases I agree with Whitman—*the position should be corrected.* This does not usually mean "breaking-up" the impaction loosely. The impaction is remodelled, so to speak, becoming looser, but not really loose at any stage in the proceeding.

I also agree with Whitman that fixation in abduction is desirable but here is where I go further. After correction, before the abduction, I impact!

With the bone-surfaces accurately adjusted by proper traction and rotation, impaction is carried out with a large heavy mallet, slowly swung, striking the trochanter, which is protected with felt. The impaction *does* take place, corresponding to the accidental, primary impaction of the lucky cases, probably never very deep, but enough to ensure better contact. All we know about these fractures tells us that repair (slow at best, especially on the part of the poorly nourished upper fragment) depends on *accurate coaptation*, and *absolute fixation* of the broken surfaces. ***This can be obtained with the mallet.*** Whether it can be obtained by mere abduction we do not know. (Figs. 32, 33, 34.)

* Since the above was written, I am using the spica more frequently, because I find these old folks easier to handle and more comfortable, if treated in this way.

None of us can talk much about series of cases, accurately studied; these patients are curiously hard to follow, it is nearly impossible to get them back to an x-ray machine, and only by studying "push and pull" x-rays, can we ever be sure about the existence of bony union in any case. (Figs. 14, 15, 17, 18, 19, 20, 21, 22.)

About three years ago I first began taking these "push and pull" plates. If we have one plate taken while a traction of perhaps fifty pounds is exerted by hand on the foot, and another in which an upward thrust is exerted, there is even in the best fibrous unions, a perfectly definite difference in the pictures. Even where the up and down motion is so little as to be in doubt, the comparisons of the two positions show at least a rocking head. (Figs. 15, 17.) These pictures are easy to take; they are conclusive, and only after testing our fracture results in this way can we justifiably talk about *bony* union.

In the meantime, I regard impaction as at least an important safe-guard. In the extracapsular cases it helps hold them (Figs. 28, 29), but is not essential. In the fractures of the neck proper I believe we have no right to leave the fracture without making sure there is impaction. The failure of bony union is too serious to take chances on. (Figs. 32, 33, 34.)

Open operation calls for only a short notice. Never in order in fresh cases, it is restricted to those cases of fracture of the neck in which the closed method has failed.

Radical refreshing of the surface of fragments through the anterior route of approach, and correction of position is the only method. When we have gone so far, it is probably best to nail the fragments. I have had successes with simple fixation in forced abduction and have tried impaction with good result, but the nail is probably always advisable. It must be a *temporary* nail, by choice a 4½ inch or 5 inch wire-nail spike driven in through a small incision through trochanter and neck till it appears in the gap between fragments, then driven forward three-quarters of an inch farther. Its head projects through the skin enough to get hold of it, comes out easily after three to six weeks, and leaves no irritant foreign body behind after it has done its work of fixation. (Fig. 35.)

In some cases (a minority, I fear) I have been able to demonstrate bony union.

In conclusion, I believe in the abduction principle, but not as a cure-all method; and I believe no less firmly in the principle of ensuring real fixation by artificial impaction, again, not as a cure-all, but as a method of real value.

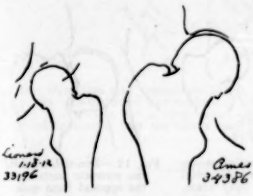


FIG. 1.—Crack of femoral neck: displacement inconsiderable.

FIG. 2.—True impaction of femoral neck.

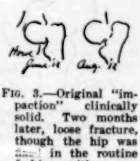


FIG. 3.—Original "impaction" clinically solid. Two months later, loose fracture, though the hip was [illegible] in the routine fashion, with a special nurse in charge.

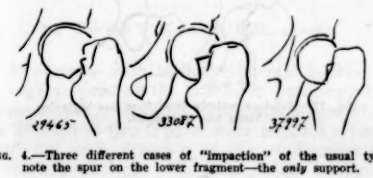


FIG. 4.—Three different cases of "impaction" of the usual type: note the spur on the lower fragment—the *only* support.



FIG. 5.—Loose fracture: Two positions taken on the same day (not "push and pull" pictures).



FIG. 6.—Supposedly impacted fracture that "fell apart." The x-ray confirms the illusory sort of impaction present.



FIG. 7.—Types of basal fracture.



FIG. 8.—Other types of base fracture of not unusual occurrence.



FIG. 9.—"Intertrochanteric" hip fractures.



FIG. 10.—Crack of femoral neck. Picture 18 days later, showing absorption, though union was in the end by solid bone.

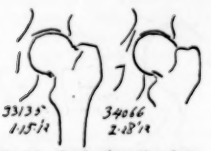


FIG. 11.—Crack: absorption shown 44 days later. Admirable clinical result, probably bony union.



FIG. 12.—Non-union; note the sclerotic surfaces of the opposed bone ends.



FIG. 13.—Fracture entirely loose from the beginning. Views four days apart.

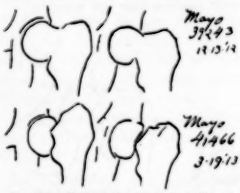


FIG. 14.—Progressive loosening; fibrous union; above, "push and pull"; below, the same case three months later.

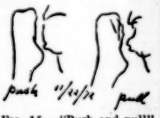


FIG. 15.—"Push and pull" x-ray five months after the accident. Here as in Fig. 17, rotation of the head is an important part of the displacement.



FIG. 16.—"Impaction" that broke up in bed under very careful treatment.



FIG. 17.—Same case as Fig. 16, "push and pull" five months later; close fibrous union; note that the displacement is hardly more than a *rotation* of the *head* of the femur.

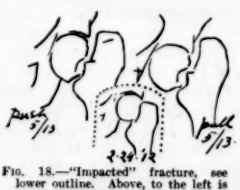


FIG. 18.—"Impacted" fracture, see lower outline. Above, to the left is the "push" picture, to the right the "pull" outline. Obviously, there is only *fibrous* union. The clinical result is poor.

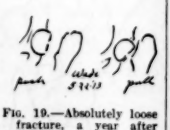


FIG. 19.—Absolutely loose fracture, a year after the injury. "Push and pull" picture. The clinical result was very poor.

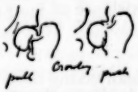


FIG. 20. — *Close* fibrous union, push and pull pictures.

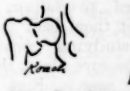


FIG. 21. — Base fracture (old) with coxa vara. The "push and pull" pictures in this case were identical: *i.e.* union was by bone, as *always* in treated basal fractures.



FIG. 22.—Base fracture (old) showing "push and pull" composite. Outlines identical: *i.e.* union by *bone* as *always* in this type.



FIG. 23.—Subtrochanteric fracture. There was grotesque deformity but solid union. Later I took this fracture apart, spiked it and got a solid union with a very serviceable hip as a result.



FIG. 24. — Base fracture, — typical. Shows the development of moderate coxa vara deformity during a month of treatment in *fixation without abduction*.



FIG. 25.—Basal fracture: outline to the right shows the development of coxa vara deformity (slight) in four weeks of *fixation without abduction*.



FIG. 26.—Basal fracture, abduction treatment (in plaster spica); results two weeks later, neck shortened, but angle of neck near normal.



FIG. 27.—Basal fracture: abduction in plaster spica.: Riding by of fragments under the abduction pull.

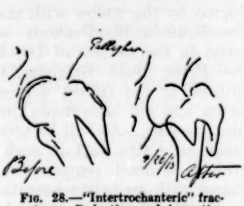


FIG. 28.—"Intertrochanteric" fracture. Reduction and impaction with the mallet. Distinctly improved position. Union solid. Clinical results excellent.

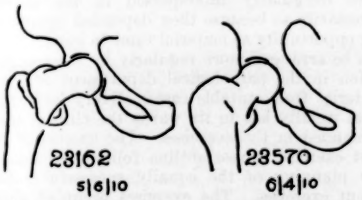


FIG. 29.—Base fracture before and after *impaction with the mallet*.



FIG. 30.—Neck fracture proper. Before and after forced abduction and application of a plaster spica. Note the betterment in angle and in shortening.

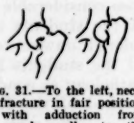


FIG. 31.—To the left, neck fracture in fair position with adduction from muscle pull; to the right abduction from actual bony deformity: I believe the two to be equally crippling.



FIG. 32.—Tracing to the left shows the original "impaction." The patient was discharged, but presently returned with the obviously loose fracture shown in the middle plate. Under ether, impaction was performed with the mallet. Clinically the result was excellent; for detailed data see the outline at the right.



FIG. 33.—Loose fracture of neck, shown after impaction with the mallet. The patient died of lung edema after a month, but with the impaction still solid.



FIG. 34.—Much shortened neck fracture. Reduction under ether; impaction with mallet; plaster spica in abduction; result shown at two months. Union apparently solid. Later clinical result excellent.



FIG. 35.—Operative case (temporary spike), six months after operation (14 months after the accident). There is a close union but it is a fibrous, not a bony union. Results of operation are good but operation does not ensure bony union.

THE EXPERIMENTAL METHOD AS UTILIZED IN THE CLINICO-PATHOLOGICAL CONFERENCE.

BY HOWARD T. KARSNER, M.D., BOSTON.

Experience with the experimental method as a regular part of the course in pathology has demonstrated its value. How much time shall be allotted to this type of work remains a problem for each director of the undergraduate work in pathology. The same is true in regard to the degree of participation by the student in such exercises. A scheme for the participation of students in the actual performance of experiments has been outlined in a previous paper[1] and has been operated successfully for three years in the Harvard Medical School. Criticism has been offered to the effect that much of the technique necessary to carrying on the work must be learned by some of the students and that they readily forget these details. This is probably true, but time limitations are such that a course of this kind cannot have as its function instruction in technical procedures to large classes. The participation of the students must have for its purpose contact with experimental procedures, not so much for the technique as for the point of view which it engenders. This point of view has its value not only in pathology but in all the work of the medical course and it is a point of view that cannot be gained by observation of the results of others nearly so well or so permanently as by actual participation, a truism that forms the basis for all laboratory training. In its ultimate analysis, experimental pathology means simply the adoption by the trained pathologist of the methods of physiology, chemistry, surgery, immunology and bacteriology. The teaching of experimental pathology then is simply the utilization of these methods in explaining the processes and products of disease. Properly applied this form of teaching does not ignore the anatomy and histology of the lesions; to the contrary, it emphasizes the importance of the lesions by showing the correlated functional change. It is difficult for the bio-chemist and physiologist to make extensive clinical application of their

[1] Karsner, H. T.: The Function of the Experimental Method in the Course in Pathology, BOSTON MED. AND SURG. JOUR., 1912, vol. clxvii, p. 531.

work in the undergraduate courses because the students at that stage in the graded course have little or no knowledge of pathological anatomy. Hence, the teaching of pathological physiology in its broadest sense devolves upon the experimental pathologist. The gap between the clinic and the fundamental sciences is one of the penalties of the graded course and even with the institution of work in experimental pathology it is not completely bridged. Unfortunately, from this particular point of view, much of the work in the fundamental sciences is taught with reference to pure science rather than to the applied science of medicine and in many respects this is necessary. To overcome this difficulty various schemes have been devised, such as the new method of examinations in the Harvard Medical School whereby it is necessary for the student to pass a general collective examination in all the subjects of the first two years at the end of that period and in all the subjects of the second two years at the end of his course. There can be no question of the value of this particular scheme. Uniformity of ideals on the part of teachers and close coordination of the teaching of the fundamental sciences and of the clinical branches can do much to aid the student in correlating in his own mind all the subjects of the medical curriculum. The necessity for such close coordination of teachers has been made the basis for the appointment to the Children's Hospital in affiliation with the Harvard Medical School of the heads of the departments of bacteriology, bio-chemistry, pharmacology, physiology and experimental pathology, the heads of these scientific departments to have rank on the visiting staff with the visiting physicians and surgeons. This cannot but react beneficially on the work of the school and the hospital and to the mutual advantage of physician, student and patient, in regard to diagnosis and treatment as well as teaching and investigation. It must have been the same spirit of cooperation that led to the establishment abroad and in this country of the various exercises in clinico-pathological correlation. With the modern development of the fundamental sciences and the institution of undergraduate work in experimental pathology such exercises have become inadequate and it becomes necessary to include in such conferences the related alterations of function. It would be well if the conferences could command the services of workers in the various special fields and it is hoped that the future will produce such a cooperative scheme, but at the present time the experimental pathologist is obliged to fill in the details of processes and functions which are necessary to make clear the relation between the pathological lesions (including their relations to each other) and the clinical case. That such a scheme is practicable is illustrated by the account of the exercises which have been conducted by the writer with the invaluable aid of Dr. Francis W. Peabody whose clinical material in the service of Dr. H. A. Christian at the Peter Bent Brigham Hospital has been utilized to the fullest degree, and whose sympathy and aid have made the fulfillment of the idea possible. As will be seen, Dr. Peabody has taken an active part in each exercise. The exercises outlined require the affiliation of the school with an active hospital, in which clinical cases are studied intimately, careful records kept and autopsies performed upon a large number of fatal cases. The exercises, as conducted, were irregularly interspersed in the course, necessarily so because they depended upon seizing opportunity as material came to hand. They can be arranged more regularly by the accumulation in the pathological department of gross material from suitable cases. Every large hospital usually has in its wards the clinical cases demanded in the exercises. The success of the first exercise, whose outline follows, stimulated the planning of the equally successful subsequent exercises. The exercises occupied about three hours, a rest period of ten minutes being provided at the end of each hour. They presuppose considerable preliminary work on the part of the students and it has therefor been considered unwise to attempt these exercises until the students have had eight weeks work in pathology as conducted under the concentration method of the Harvard Medical School.

EXERCISE 1. Aortic valvular disease.

A. Seven formalin preserved human hearts showing aortic disease were given to seven pairs of students; the hearts were studied and the students were quizzed by Dr. Karsner in the presence of their classmates, the entire class taking part in the conference on each specimen.

B. Demonstration of physiological tracing of pulse and blood-pressure from a dog with experimental aortic stenosis. The demonstration was by the five students who had participated in the experiment, and the students were reminded that they had listened with the multiple stethoscope to the murmur in this animal.

C. Demonstration by students of physiological tracing of pulse and blood-pressure from a dog with experimental aortic regurgitation.

D. Demonstration by Dr. Peabody of a human patient with double aortic murmur. Students listened to murmurs with multiple stethoscope.

E. Reading of case history of a case of aortic stenosis and summary by Dr. Peabody. Demonstration by Dr. Karsner of the fresh autopsy material from this case. Conference on the pathological anatomy, physiology and clinic of this case by Drs. Karsner, Peabody and class.

EXERCISE 2. Arterio-sclerosis.

A. Demonstration by students of ten gross specimens of arterio-sclerosis; conference.

B. Demonstration by students of adrenalin arterio-sclerosis in the rabbit. Conference on the theories of the development of arterio-sclerosis, including brief discussion of cholesterol sclerosis and lactic acid sclerosis.

C. Demonstration by Dr. Peabody of a case of syphilitic arterio-sclerosis (aortitis).

D. Case history and summary by Dr. Peabody of a case of syphilitic arterio-sclerosis with aortic regurgitation; demonstration by Dr. Karsner of fresh material from this case.

E. Demonstration by Dr. Peabody of radiographs from a case of peripheral arterio-sclerosis.

F. Case history and summary by Dr. Peabody of a case of peripheral arterio-sclerosis; demonstration by Dr. Karsner of fresh autopsy material from this case.

Clinical Department.

THE VESALIANUM MISTAKEN FOR A FRACTURE OF THE FIFTH METATARSAL BY INVERSION OF THE FOOT.

BY WILLIAM PEARCE COUES, M.D., BOSTON.

THE SAMUEL D. GROSS PRIZE.—It is announced that essays will be received in competition for the Samuel D. Gross Prize of $1500 until January 1, 1915. Further information may be obtained by addressing Trustees of the Samuel D. Gross Prize, 19 South 22nd Street, Philadelphia, Pa.

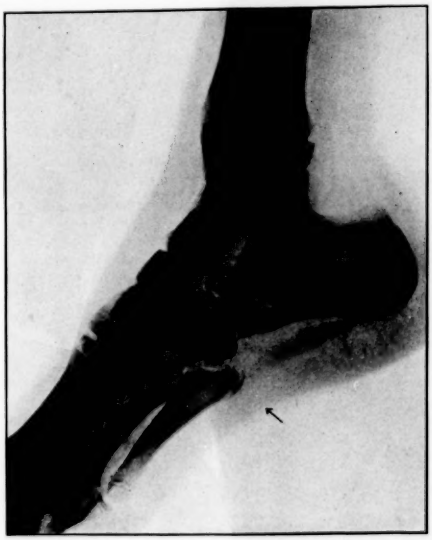
ankle for this time

Examination, Nov. 23, showed a fairly well developed and nourished little girl, the left ankle, the seat of the traumatism, was not swollen. There was slight ecchymosis over the external lateral ligament region and pain on pressure over the region of the scaphoid. The motions of the ankle were free; the child walked with a limp. A provisional diagnosis of simple sprain, or a possible fracture of the scaphoid, was made. The foot was immobilized in plaster-of-Paris. The x-ray showed what seemed to

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THE VESALIANUM MISTAKEN FOR A FRACTURE—COUES.



Vesalianum or bone of Vesalius. Female, 12 years, November, 1913. Thought to be Jones' fracture of metatarsal, left foot. Right foot shows same variant.

future will produce such a cooperative science, but at the present time the experimental pathologist is obliged to fill in the details of processes and functions which are necessary to make clear the relation between the pathological lesions (including their relations to each other) and the clinical case. That such a scheme is practicable is illustrated by the account of the exercises which have been con-

Karsner, Peabody and class.

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D. Case history and summary by Dr. Peabody of a case of syphilitic arterio-sclerosis with aortic regurgitation; demonstration by Dr. Karsner of fresh material from this case.

E. Demonstration by Dr. Peabody of radiographs from a case of peripheral arterio-sclerosis.

F. Case history and summary by Dr. Peabody of a case of peripheral arterio-sclerosis; demonstration by Dr. Karsner of fresh autopsy material from this case.

G. General conference.

Exercise 3. Diabetes mellitus.

A. Fifteen-minute review by one of the students of normal carbohydrate metabolism.

B. Discussion by five students on the basis of their own experiments of the influence on carbohydrate metabolism of pancreatectomy, subcutaneous injections of adrenalin, of morphin, of phlorrhizin and of puncture of the floor of the fourth ventricle.

C. Conference directed by Dr. Karsner on the pathological histology of diabetes mellitus on the basis of material studied during the regular course.

D. Resumé of the pathological physiology of diabetes mellitus in its relation to clinical medicine by Dr. Peabody and exhibition of case of diabetes mellitus of protein origin with complete correlated dietary and urinary charts.

Exercise 4. Nephritis.

A. Demonstration by students of seven specimens of chronic nephritis.

B. Reports by students of the acute nephritis of the rabbit produced by uranium nitrate, potassium chromate, cantharadin, diphtheria toxin, sodium tartrate.

C. Demonstration by students of the simultaneous record of kidney volume, blood-pressure and urine flow of a normal dog and discussion of the pathological variations in acute nephritis.

D. Discussion by Dr. Peabody of the phenolsulphonephthalein functional test.

E. Report by students on basis of their own experiment of retention of non-protein nitrogen in the blood in acute nephritis produced by sodium tartrate.

F. Demonstration by Dr. Peabody of case of chronic nephritis.

G. Case history and summary by Dr. Peabody of a case of chronic nephritis with heart hypertrophy; demonstration by Dr. Karsner of the fresh autopsy material from this case.

Similar, but necessarily somewhat briefer, exercises were conducted on the subjects of pneumonia and of serosis of the liver.

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Clinical Department.

THE VESALIANUM MISTAKEN FOR A FRACTURE OF THE FIFTH METATARSAL BY INVERSION OF THE FOOT.

By William Pearce Coues, M.D., Boston.

The occurrence of the Vesalianum in the foot is so unusual that no reference is made to it in such modern anatomies as Sobotta, Piersol, Gerrish, Morris, Macalister and Gray.

A very few of the x-ray experts with the greatest experience are familiar with its occurrence, and a very few surgeons, although the modern fracture books are silent on the subject of its occurrence and relation to fracture of the base of the fifth metatarsal.

An excellent description is given of this bone, however, in the late Professor Dwight's[1] "Clinical Atlas of the Variations of the Bones of the Hands and Feet." Its rarity may be judged from Professor Dwight's description: "The Vesalianum, corresponding to the bone of the same name of the hand, is the proximal and external part of the tuberosity of the fifth metatarsal. It is excessively rare. I have never seen it in the macerated foot of an adult. Spronck has seen it at birth, and I think I have probably made the same observation. I have once seen it in the skiagraph of a girl of twelve. The entire base of the fifth metatarsal varies much in size. The Vesalianum is usually more or less marked off by a groove on the plantar surface. Grueber has seen a proximal epiphysis not to be confounded with the Vesalianum distinct in the adult."

Professor Dwight shows a plate of the foot of a girl aged 13, showing a separate element very clearly. There was no suspicion of injury. This picture is an exact counterpart of the radiograph of the case reported in every detail.

Report of Case. G. L., 12 years of age, was seen in the surgical clinic of the Boston Dispensary, Nov. 24, 1913. The child was a healthy girl with no history of previous injury to the ankle. While running one week before, she slipped and fell, her left ankle turning under her. She was lame for one week before coming to the clinic. There had been considerable pain in the region of the left ankle for this time

Examination, Nov. 23, showed a fairly well developed and nourished little girl, the left ankle, the seat of the traumatism, was not swollen. There was slight ecchymosis over the external lateral ligament region and pain on pressure over the region of the scaphoid. The motions of the ankle were free; the child walked with a limp. A provisional diagnosis of simple sprain, or a possible fracture of the scaphoid, was made. The foot was immobilized in plaster-of-Paris. The x-ray showed what seemed to

be a fracture of the base of the fifth metatarsal bone, exactly the lesion first described by Robert Jones,[2] in 1902, and of which I have had two recent cases in adults. The occurrence in childhood seemed most unusual. After two weeks or more immobilization, the plaster was removed and an x-ray taken, which showed the supposed fragment in exactly the same condition as before, not united. There was distinct pain on pressure over the base of the fifth metatarsal, however, not present on the right, and it was supposed that the fragment was slow to unite. At the end of another two weeks, the plaster was removed, and another picture taken, which showed the same condition. A picture was now taken of the other ankle, as Dr. H. M. Chase had suggested the possibility of an epiphysis at this place. The radiograph showed the same shell-like bone united to the base of the metatarsal by cartilage. All tenderness had gone from the left foot; the bandage was removed, and weight-bearing begun, with perfect result as regards function. From the tenderness over this region at the time of injury and afterwards, an infraction of the cartilage, uniting the vesalianum to the shaft, could not be ruled out.

The importance of the recognition of this rare abnormality is obvious. Its relation to the cases of fracture of the base of the fifth metatarsal bone by inversion needs further study and elucidation. It is possible that some of the reported cases of this lesion have been this rare anatomical variant, and that others may have been fractures through the line of union to the metatarsal. A radiograph of both feet with a good view of each fifth metatarsal bone should be taken in all cases where the diagnosis of fracture of the base of the fifth metatarsal bone has been made.

REFERENCES.

[1] Dwight: Clinical Atlas of the Variations of the Bones of the Hands and Feet, 1907, p. 21.
[2] Jones, Robert: Annals of Surgery, 1902, vol. xxxv, p. 697.

New Instruments.

A NEW COMBINATION TONSIL KNIFE.

BY ROCKWELL A. COFFIN, M.D., BOSTON.

IN devising this instrument the author has combined several knives in one, thus simplifying the enucleation of the tonsil.

The broad flat blade may be used for the first incision along the anterior pillar. The curve of the blade conforms to the contour of the tonsil thus facillitating manipulation of the instrument in the supra-tonsillar fossa, the broad flat end acting as a dissecter if necessary.



While the instrument is made sharp for those who prefer it, the author dulls it slightly in order to prevent injuring the pillars after the field of operation is partly covered with blood and also to reduce the liability to hemorrhage. The instrument was made by M. Uhl, Boston.

Medical Progress.

REPORT ON OBSTETRICS.

BY ROBERT L. DENORMANDIE, M.D., BOSTON,
AND
JOHN B. SWIFT, JR., M.D., BOSTON.

PITUITARY EXTRACT IN UTERINE INERTIA.

Edgar[1] reports the use of pituitary extract in seventy cases. In these cases he used the preparations of Burroughs Wellcome & Company, Parke Davis & Company and Armour & Company. For decided action of the drug Edgar says 0.4 gram is the initial dose. Repetition of the dose may be called for as the action of the drug disappears in about twenty-five minutes. If no action is secured after the second dose given half an hour after the first, there is no good of further repetition.

Edgar says the extract should have no place in normal labor and its administration should be confined in obstetrics to instances of primary and secondary inertia, to post-partum hemorrhage and Caesarean section.

Theoretically the extract causes intermittent contractions of the uterus, practically with full or repeated doses the contractions approach the tetanic type and clinically must so be reckoned with. Given early in the first stage the extract is equivalent to the use of ergot and must not be used for premature separation of the placenta, fatal compression of the fetus and even uterine rupture have followed its use under these conditions.

In cases presenting a dilated or readily dilatable cervix with inertia existing, without too much resistance the extract renders valuable aid. Edgar observed that the drug acts best at full term in the second stage of labor and is more positive in multiparae than in primiparae. In nineteen cases the drug was used for post-partum hemorrhage and Edgar says the results were disappointing and that he considers its use in these cases unreliable. In Caesarean section the action of the drug was found to be much quicker than ergot. In all cases where it was used to induce labor it failed.

Edgar ends his paper with twenty-four conclusions based on these seventy cases.

PITUITARY EXTRACT IN OBSTETRICAL PRACTICE.

Watson[2] briefly reviews the anatomy and physiology of the pituitary body and then takes up the action of the extract. Watson says that when the extract is given to a woman in labor it quickly causes an increase in the strength of uterine contractions, the duration of contraction is increased and the intervals between the pains shortened. The first contraction he says may be tetanic in character, but they very soon resume their ordinary rhythmic character. Watson says when the drug is given during the first and second stage of labor the results are practically constant, that the results are always most apparent if the pains have been previously feeble occurring at long intervals.

Watson thinks there is little difference in the activity of the preparations now on the market. He advises giving the drug by intramuscular injection and he says no pain follows the injection. Given intravenously pallor, cyanosis, perspiration and a sense of oppression have been reported and therefore is not recommended. Watson also uses as a full dose one cubic centimetre which represents 0.2 gram of the gland substance. There apparently is no cumulative effect of the drug. The effect on the uterus is usually seen within ten minutes and the maximum result is so obtained in from half an hour to an hour and a half after injection. A second injection, Watson says, again stimulates powerful contractions.

Watson is enthusiastic over the action of the drug to accelerate labor when it is already in progress. He says the results are more certain in the second stage than in the first and that the lower the head is in the pelvis the more pronounced is the effect of the drug and that its timely use will save many a forceps operation.

Watson says the use of the extract is indicated in slight contraction of the pelvis, saying, even if forceps should ultimately be required, the more powerful contractions induced, help mould the head and make extraction easier, and that if the drug is going to act it will do so within ten minutes and so no time is lost. He quotes Linzenmeier as urging the use of the extract after pubiotomy. In the earlier part of the first stage the results are not quite so certain, but they are better in multiparae than in primiparae.

Watson says that in severe post-partum hemorrhage he has had no personal experience with it, but in bleeding of minor degree it has produced powerful contractions.

In the induction of labor Watson says there is more or less diversity of opinion but he reports three cases where he used pituitrin; one at the eighth month, one at full term and one three weeks post-term, which were successful. He feels that further trial of the extract is justified. The important point in this type of case he says is to administer a second dose before the effects of the first have passed off.

In placenta praevia, he says, a number of successful results have been recorded, by the extract stimulating strong contractions so that the presenting part is pressed down against the lower uterine segment, and hemorrhage is arrested. When given about two minutes before doing a Caesarean section pituitrin he says has a marked effect in diminishing the loss of blood.

Of the bad effects the drug may have he notes cardiac distress, vertigo, tachycardia, and respiratory difficulty. He suggests that these may have been due to the injection having unknowingly been intravenous. Watson says the drug may set up tonic contractions of the uterus and may cause a spasm of the internal os. The first contraction is usually a prolonged one, one writer having noted pains lasting from four to seventeen minutes. After this first powerful contraction the uterine action is usually normal.

Watson says that these prolonged contractions usually result in a marked slowing of the fetal heart, but that the child is seldom in real danger as the ordinary rhythmic contractions succeed the tonic opening one. One writer reports the death of a child after the injection of 1c.c. of the extract as the result of tetanic contraction, before delivery could be effected with forceps. He quotes Herz as reporting a rupture of the uterus as the result of giving 1 c.c. of pituitrin.

Several writers report spasmodic contractions of the os after the injection of the extract in cases where induction of abortion was desired. One writer reports he had to incise the cervix in one case. Watson says numerous cases have been reported where atony of the uterus followed the termination of the third stage.

The bad effects on the child are due to the prolonged contraction of the uterus.

There is a long bibliography at the close of the article.

ON THE USE OF PITUITARY EXTRACT IN OBSTETRICS.

Harrison[3] begins his article with a short resume of the development of the use of the pituitary extract in obstetrics. He says an examination of the literature shows at least 1650 cases where it has been administered. Harrison says that the use of pituitary extract is not without some danger to the child though danger to the mother seems very slight. He advises that the fetal heart sounds be kept constantly under observation. The danger he says undoubtedly is greatest when the drug is given in the first stage of labor. He states that the majority of observers have found that for the

production of abortion the extract alone is insufficient. He also feels that it is not of any great service in initiating premature labor. He says practically all observers are unanimous in declaring that it is of the greatest value after dilatation of the soft parts and during the expulsion stage of labor where uterine weakness supervenes. Harrison says that of the total number of cases he has found reported there are less than fifty cases of complete failures.

He reports two successful cases in his own practice to illustrate the use of the extract. He also reports two failures, one where the perineum did not relax and the second where the expulsion power of the uterus was not increased. In both these cases forceps delivery was necessary. They are reported without specific data in the most general terms.

Harrison agrees with others that the extract must not be used after the delivery of the child before that of the placenta, because of the danger of tetanus of the uterus and retention. He does not favor its use in post-partum hemorrhage but suggests along with other observers that its use may help the patient to empty her bladder after delivery and that it may prove of use in increasing the milk secretion.

There is a long list of references at the end of the article.

PITUITRIN.

Melville[4] says his purpose in writing this short paper is to direct the attention of every physician who engages in obstetrical practice to the importance of employing pituitary extract in properly indicated conditions. His experience is limited however to eight cases. He says that two of his cases were primiparae and no unusual lacerations of the soft parts were noted. He says it makes little difference whether the os is dilated or not; delivery follows with accuracy and dispatch. He also states no untoward effect has been noticed upon the child.

PITUITARY EXTRACT IN OBSTETRICS.

Lindeman[5] feels that in the use of pituitary extract there is the solution of many a difficult obstetric problem, that by its use many forceps operations can be entirely avoided, that inertia uteri can almost be excluded as an indication for forceps, that many "high forceps operations" will be converted into at least a "medium" and not infrequently into a "low" operation.

He says in the class of cases when the head is on the perineum for some time with infrequent and ineffectual pains, the use of pituitrin will almost invariably enable the patient to deliver herself to her great satisfaction and that of her family and the credit of the physician who has refrained from interference and has employed physiological rather than mechanical means to aid delivery.

Lindeman cautions against using the extract before the cervix is well dilated, for he says it acts sometimes with almost unbelievable violence. As an instance of this violence he mentions a case which occurred in the practice of a colleague when such violent contractions occurred that the patient assumed the position of opisthotonos. But he says no harm was done the mother or child.

In cases where the cervix is not over four fingers dilated he advises only using one half an ampoule (0.05 gm.) at a dose and for an initial dose he says one should never use more than 0.1 gm. If 0.2 or 0.4 gm. be used such violent labor may result that even the administration of chloroform may not control it.

He reports the following cases of his experience with the drug:

In Case 1 pituitrin had no effect.

In Case 2 three injections followed by post-partum hemorrhage and manual removal of the placenta. Patient collapsed and then made an uneventful recovery.

Case 3, one injection without effect. Labor then induced by Voorhees bag and delivery completed by forceps.

Case 4, three injections and labor spontaneously completed. In the convalescence developed severe sepsis but eventually recovered.

In these four cases, pituitrin was used to induce labor and two failures and two successes resulted. The remaining six cases which he reports are of cases where labor had begun. In two cases the cervix was fully dilated. In one case the condition of the cervix was not mentioned and in three it was two to four fingers dilated. In five of these six cases delivery was spontaneously accomplished but in the last forceps delivery was necessary. In this last case he first used a Voorhees bag then seven doses of pituitrin and finally delivered the patient by forceps with manual extraction of the placenta. In one case a contraction ring was found.

In no one of the reports is there mention made whether there were any tears of the cervix or perineum.

Lindeman says the contra-indications for the use of pituitrin are (1) In friable, rigid, or diseased cervices; (2) When there is danger of rupture of the uterus, in cases where fibroids are present or in cases where myomectomies have been done or there is a marked disproportion present. (3) Where there already is a too high blood pressure present. (4) The possible formation of a contraction ring. (5) The danger of asphyxia of the infant. Lindeman feels that this latter danger is not likely to occur unless excessive doses are used.

1. He concludes that the drug is of undoubted value in almost all cases of simple inertia, and fatigue.

2. It is of value occasionally for the induction of labor at or near term.

3. That it seems to be practically devoid of harmful effects and its dangers are few and easily guarded against.

PITUITRIN IN OBSTETRICS.

Litzenberg[6] says pituitrin has passed the first stage of neglect by physicians and is now in the second stage of exploitation and he hopes by a few words of timely warning that he will help in preventing the reaction which must inevitably come by too enthusiastic exploitation. He summarizes the findings of many writers who have had varying results and report absolutely contradictory facts.

Litzenberg reports thirty cases of his own with varying results. The reports are so meagre that a good idea of the cases is not obtained. In sixteen of the cases pituitrin acted promptly, slowly in two and no effect in two. Forceps were required in six cases. In one case tetanic contractions occurred; one child was asphyxiated but soon resuscitated; one extensive laceration due to the violent pains produced. Four times the drug was used in the first stage but only once with satisfactory results. In the twenty-two cases in the second stage seventeen responded promptly.

1. He concludes that pituitrin is a valuable stimulant to uterine contractions.

2. That it will not usually produce abortion.

3. That it will sometimes induce premature labor, but that with an undilated cervix it is not to be recommended.

4. That it is most efficacious during the second stage of labor.

5. That it is of some value during the third stage.

6. That after delivery it is of some value but not better than ergot.

7. That its proven value is limited to the second stage.

8. That the knowledge of its action is still limited and its use is not without danger and so must be used with caution.

In the past few years many reports of the use of preparations from the pituitary gland have appeared. The Germans have written much but with contradictory findings. The several pharmacological houses which have put these preparations on the market write most enthusiastically of its use and from the advertisement of one house the physician would gather that there are no contra-indications for its use and that all the problems in obstetrics will be solved if the extract of the pituitary gland is used. The preceding six articles are culled from the recent literature and show the contradictory reports that physicians give in regard to the use of the extract. Melville's enthusiasm based on an experience of eight cases is characteristic of many articles where the physician's apparent one idea is to obtain a delivery with despatch.

The papers based on many cases with a careful analysis of the cases reported show that the extract is most uncertain in its action and at times, not infrequently, is severe damage done. Premature separation of the placenta, tetanic contractions of the uterus, rupture of the uterus, fatal compression of the fetus, all have been reported as following the injection of the extract and yet more than one writer says it is a safe drug!

The consensus of opinion is that to induce premature labor its action is so unreliable that it should not be used. The more conservative and thoughtful physicians demand that it be not used until the os uteri is fully dilated, that there be absolutely no bony resistance to the delivery and that there be no scar tissue present. When these conditions are fulfilled and uterine pains are insufficient to accomplish delivery, then the use of the extract many times will accomplish surprising results.

If it is given, the physician must stay constantly with the patient for as yet there is no way of determining in any given case what action, if any, will result. As one of the above writers truly states the drug is at present being exploited and because of this exploitation much damage will surely result. The extract is a powerful drug and its indiscriminate use is to be fought. Carefully used it will prove a valuable aid in a small class of cases.

(To be continued.)

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, Mar. 11, 1914, at 8.30 p.m.

The President, Dr. William Duffield Robinson, in the chair.

INFLAMMATION OF THE GALL-BLADDER; ITS CAUSES, SYMPTOMS AND RESULTS.

Dr. James Tyson: The paper emphasizes the importance of the early surgical treatment of cholelithiasis, the most important consequence of inflammations of the gall bladder. Perhaps the most common cause of inflammation of the gall bladder is the typhoid bacillus which creeps into the common duct from the bowel. The favoring cause may be gall stones pre-existing in the bladder, or they alone may be sufficient to light up an inflammation. Adhesion of the gall bladder to adjacent viscera is a frequent cause of pain in the right upper quadrant. Cholelithiasis may develop entirely independently of gall bladder inflammation. Predisposing causes are sendentary habits, lack of exercise, tight lacing, child-bearing, abdominal tumors,

excessive use of fatty, starchy and saccharine food. The causal relation of stones in the gall bladder and biliary passages to carcinoma is unquestioned, and I believe that every case of well determined cholelithiasis should be promptly operated upon. Histories of three cases are given in support of this view. Among other terminations of cholelithiasis succeeding upon delay in operation which are scarcely less serious than carcinoma are suppurative cholangitis with involvement of the ducts of the liver and extension to the liver substance or gall bladder, and biliary fistulae. It cannot be denied that associated cancers of the gall bladder may have preceded the cholelithiasis, but there is equal reason to believe that they follow. Medical treatment of cholelithiasis is at best but palliative. In doubtful cases, exploratory operation is justifiable. At present operation upon the gall bladder, if done early, is as free from danger to life as is appendectomy.

THE TREATMENT OF GALL-BLADDER INFECTIONS; WITH A REPORT OF 26 RECENT CASES.

Dr. John H. Gibbon: I have substituted the word "infections" for "gall stones" as we now know that the primary cause of these stones is a microbic infection reaching the gall bladder either through the blood or directly through the bile passages from the intestine. The object of the paper is to consider operative indications, present some of the pathological complications arising when these indications are not heeded, and to say something about the post-operative mortality and its causes. The basis of the paper is a series of 26 gall bladder cases upon which I have operated during the past six months. The figures, though small, illustrate every point I would make. If one feels warranted in making a diagnosis of gall-stones or gall-bladder infection, one should also feel warranted in advising operation unless there be some definite contraindication. To await serious symptoms is comparable to awaiting glandular metastasis and malignant cachexia before making a diagnosis of cancer. The earliest and most persistent symptom of gall bladder infection is what the patient calls "indigestion" or "distention" in the upper abdomen, coming on especially at night and without any definite relation to the taking of food. Jaundice is not essential to a diagnosis; about 80% of operated gall-stone cases have not had this symptom. Gall-bladder symptoms may result also from other causes than the presence of stones and which demand operation.

In the present series there were two cases of acute cholecystitis without stone and three of chronic cholecystitis without stone. In my opinion both patients would have later developed stones had they not been operated upon. The brief series of cases here reported includes three cases of acute gangrenous cholecystitis, all of which recovered; two cases of acute cholecystitis without stone, one developing two weeks after typhoid fever, eight cases of stones in the common duct, one of stone in the ampulla of Vater requiring duodenotomy; one of calcification of the gall bladder, one of abscess formation in the liver and spleen, one of subdiaphragmatic abscess two weeks after operation in a case of acute cholangitis due to stones in the common duct, one of cirrhosis of the liver, one of stones ulcerating into the colon, twenty cases of stones in the gall-bladder alone or associated with some of the enumerated complications, and two cases of cancer of the gall bladder. The greatest number of stones, 771, was found in one of the malignant cases. In the cases in which the duration of symptoms is given the average is over six years. The youngest patient was 19 and the oldest 69 years of age. There were 5 deaths, all of which occurred in very ill patients. Regarding the probability of gall stones reforming after operation, I believe that if all are removed and the gall passages properly drained for about two weeks that recurrence is extremely rare.

THE ROENTGEN RAYS IN THE DIAGNOSIS OF GALL STONES AND CHOLECYSTITIS AN IMPROVEMENT IN TECHNIC.

Dr. George E. Pfahler: The improvement in technic consists, in addition to the special technic described by the author in 1910, in the use of (1) a second position by which the rays are directed through the substance of the liver, thereby eliminating the irregular shadow produced by the bowel and its contents; (2) that which is more important, the inflation of the colon, and at times of the stomach, by air, for the purpose of more definitely outlining the gall-bladder and under surface of the liver.

The lantern demonstration consists of a series of slides showing the borders of the liver, gall-bladder and spleen; also a series of 20 cases showing gall-stones, which were confirmed by operation.

As a result of these studies the following conclusions are drawn:—

1. Gall-stones can be shown only when they are composed of a substance of greater or less density than the surrounding tissue. This will usually mean that they must contain some lime salts, though this quantity may be small.

2. My records show positive findings in 74 per cent., but I believe that in general, one cannot count upon more than 50% being demonstrable. I believe a negative diagnosis at present has no value.

3. It is possible that with this improved technic, when we find the gall-bladder small, and still find no stone, it may become of some value in negative diagnosis.

4. The estimation of the value of this method of diagnosis must be based only upon the work of Roentgenologists who have mastered a good technic, and who are thorough in their work.

5. Definite information will be obtained only by continued coöperation of the surgeon and Roentgenologist.

6. I believe that in the future we shall obtain valuable information concerning the liver and spleen by the Roentgen method described.

DISCUSSION.

Dr. H. A. Hare (Discussion read by Dr. William E. Hughes in the absence of Dr. Hare):

I believe the following statements of Anderson express excellent views and are fairly warranted by our present knowledge:—

1. That while surgical procedure is frequently the best and often the only means offering a chance of relief, its advocacy, based on certainty of cure and assurance of non-recurrence, is not borne out by results.

2. That the main object of treatment is the relief of the infection and inflammatory changes, and not merely the removal of gall-stones. So long as

there is no recurrence of the inflammatory attacks, there will be no attack of gall-stones.

3. That recovery not infrequently occurs under non-operative treatment, especially in early and mild cases, and particularly after first attacks, before serious local damage has been produced by the infection.

4. Medical treatment should be given a fair trial in all cases where the patient's physical condition does not warrant operation, and with the numerous patients who refuse operation. In many such cases Anderson asserts he has seen complete and permanent recovery from all symptoms of the disease.

5. Medical treatment is indicated in many cases as a preliminary to operation, and in order to allow the acute infection to subside as far as possible.

6. Medical treatment is indicated in all cases after operation to allow of complete subsidence of the infection, and if possible, to prevent re-infection and recurrence.

7. Anderson believes that it would make for clearness of thinking and give definiteness to therapeutic aims if we adopted the suggestion of Naunyn and gave up the term cholelithiasis and classified these various infections of the biliary passages and cholangitis with such qualifiying terms as simple, catarrhal, suppurative, gangrenous, calculous, etc., according to the condition present in the particular case.

The paroxysmal nature of the symptoms, and the relief of pain temporarily upon eating are characteristics very suggestive in diagnosis. Probably the one symptom which is never lacking is that of indigestion.

DR. THOMAS R. NEILSON: I think we cannot emphasize too strongly the danger of delaying operation with the diagnosis of cholecystitis fairly made. Although the attacks may subside there is always the danger of recurrence and of the development of malignant disease. The symptom of indigestion as indicative of a chronic lesion of the gall-bladder is important, and sometimes the only one upon which a diagnosis can be made. At operation pericholecystitis is one of the commonest associated conditions, and for this nothing but operation would be of avail.

DR. W. WAYNE BABCOCK: I would emphasize the value of local anesthesia in certain types of gall-bladder disease.

Personally, he never advises strongly against operation in any case, unless it is definitely contra-indicated, but, after explaining the possibility of failure, and that operation may eventually be required, Anderson does not hesitate in early and mild cases, and especially after first attacks, to give medical treatment a thorough trial, and has found that in many instances, excellent and permanent results have been obtained.

To which I would add that occasionally we see cases die after operation that would have lived many weeks if they had been let alone surgically. Where there are evidences of septic trouble or gangrene, operation is, of course, imperative.

DR. WILLIAM E. HUGHES: It is important to recognize the existence of gall-stones because, while they may lie quiescent through the normal life of the patient, they are there and are a possible source of trouble. Nine times out of ten in cases in which my attention has been called to "gall-stones" collected from the feces they have proved to be not gall-stones, but foreign matter.

We should realize that gall-stones represent a terminal condition. The patient may have had few symptoms for five or twenty years, but finally develops an acute condition. In such a case it would have been much better to try to prevent such an outcome by early operation. It is interesting to note what other symptoms may follow gall-bladder disease. Most surgeons have seen cases in which the most surprising results have followed operation upon the gall-bladder. Arthritis deformans sometimes disappears after a gall-bladder operation. In a patient with the tic douloureux who developed gall-bladder disease the pain of the former condition disappeared after removal of the pus and gall-stones, We know that neuritis may result from gall-bladder infection. There are also conditions in the intestinal tract and other remote conditions due to intoxication or passage of the bacteria to these parts of the body. It seems to me that within the next two or three years we are going to revise our conceptions of intestinal indigestion.

DR. ROBERT N. WILLSON: I have seen more than one case of cholangitis and also gall-stone cases of necessity treated medically when the surgeon could not be reached. In such cases the symptoms have disappeared with the emptying of the intestinal tract. In gall-stone cases I have seen more than one case carried over year after year simply because the patient absolutely refused operation.

DR. GIBBON, closing: As to the archaic conclusions of Anderson which Dr. Hare left—I would have left them, too, I think—I am sorry Dr. Hare is not here to defend them.

What Dr. Pfahler has shown us is of the greatest value and promises a great deal of help. Dr. Pfahler said that negative findings do not mean that the patient has not stones. It also does not mean that the patient has not an infected gall-bladder, which, as Dr. Babcock says, gives rise to all the trouble. I feel that the interpretation of the x-ray plate must be made by an expert as well as the x-ray picture itself. I regret that the treatment in Dr. Anderson's cases was not given. There are a lot of cases apparently cured which are not really cured.

HARTFORD MEDICAL SOCIETY.

At a meeting of the Society, held April 6, DR. F. C. WOOD, Professor of Clinical Pathology, Columbia University and Director of Cancer Research, George Crocker Special Research Fund, read a paper, illustrated by lantern slides on the subject

OUR KNOWLEDGE OF CANCER.

Dr. Wood gave a brief historical resumé, showing that while cancer had been recognized by the Hindus, Egyptians, and Greeks, from the earliest periods, and had been carefully studied since then, a limit had been reached for clinical investigation of the disease, and that nothing regarding the cause of cancer had been learned. About ten years ago the use of animal transplantation, first introduced by Jensen, placed in the hands of laboratory experimenters a powerful means of approach to the unsolved question, and more had been learned as to the cause of cancer in these ten years by laboratory investigations than in the preceding thirty-five centuries. Dr. Wood gave a short account of the vari-

ous discoveries which had been made by means of experiments on animals; some of these were of biological importance merely, while others had a direct application to the human race. He spoke of the question of hereditary transmission of cancer in mice, but stated that this occurred only in certain races, in which there had been an intense concentration of cancerous ancestry, and said that it would require two or three hundred years of inbreeding of cancerous human beings to duplicate the results obtained with the mice. Such a concentration could not occur under ordinary conditions in man, and it was, therefore, doubtful that heredity played an important part in the cause of cancer. He also pointed out that cancer is not contagious; that cancer can not be transmitted from animals to man; and that cancer houses and cancer districts do not indicate either contagion or hereditary transmission, but are due to accidental groupings which can be explained by the laws of probability. He illustrated the availability of animals for the study of cancer by detailing some of his own results in treating cancer in mice with radium, the effect being as unfavorable in animals with malignant tumors as it is in man. He strongly urged the wider education of the profession in the matter of the early diagnosis of cancer, preferably by the microscope, and stated that in his opinion nothing but early surgery was of any benefit in the cure of cancer.

Book Reviews.

Text-Book of General Pathology. Edited by M. S. PEMBREY AND J. RITCHIE. New York: Longmans, Green and Company. London: Edward Arnold. 1913.

This book hardly lives up to its title of a text-book of general pathology. It consists of twenty chapters, written by different authors.

1. Introduction. By Ritchie and Pembrey.
2. Pathology of the Blood. By A. E. Boycott.
3. Information. By Ainley Walker.
4. Infection. By Ainley Walker.
5. Immunity. By C. H. Browning.
6. Degeneration, Necrosis and Calcification. By J. Lorrain Smith.
7. Hypertrophy and Atrophy. By J. Ritchie.
8. Tumors. By J. Ritchie.
9. Pathology of the Circulation. By A. E. Boycott.
10. The Nervous System. By F. W. Mott and S. V. Sewell.
11. Respiration. By J. S. Haldane.
12. Physiology and Pathology of Temperature. By M. S. Pembrey.
13. Pathology of Digestion. By A. F. Hertz.
14. Metabolism. By M. S. Pembrey.
15. Metabolic Disturbances Which Result from Hepatic Disease. By A. E. Garrod.
16. Anomalies of Metabolism. By A. E. Garrod.
17. Diabetes Mellitus and Some Other Changes in Carbohydrate Metabolism. By A. P. Beddard.
18. Gout. By I. Walker Hall.
19. Physiology and Pathology of the Kidney. By J. H. Ryffel.
20. Death. By J. Ritchie.

The reputations of the authors indicate the excellence of these chapters, most of which are very interestingly written. The physiological viewpoint is maintained by each author. The book contains a very few illustrations, and these few are of poor quality. The book can hardly be recommended as a student's text-book, but can be endorsed heartily for collateral reading in connection with a course in pathology or for graduates who wish to review their pathology or to get a knowledge of its recent advances.

Pathologisch-Anatomisches Praktikum. Für Studierende and Ärzte. Von PROFESSOR DR. MED. RICHARD OESTREICH. Urban and Schwarzenberg. 1913.

A German quiz compend in pathology, modeled after similar compends in anatomy. Possibly of use in preparing for examinations, but not where the examinations are intelligently given.

Practical Bacteriology, Microbiology and Serum Therapy. (Medical and Veterinary). A Text-*Book for Laboratory Use.* By DR. A. BESSON. Translated and adapted from the Fifth French Edition by H. J. HUTCHENS, D. S. O. pp. 892. New York: Longmans, Green & Co. 1913.

This is the most complete reference book of its size in bacteriology. It is thoroughly up-to-date on most subjects, and contains directions and formulae for practically every known bacteriological procedure. The principal bacteria are concisely and well described. The book also includes a section on spirochaetes and protozoa pathogenic for man and animals. The inclusion of Veterinary Bacteriology enhances the value of the book materially for the laboratory worker. The absence of theoretical discussions perhaps detracts from its value as a student's text-book. It is a book that has proved very valuable to laboratory workers, as a handy reference volume, and is the best book of this sort, of which the reviewer has knowledge. It makes an admirable text-book for advanced students. The one serious criticism is the failure to give the references to the different authors quoted.

THE BOSTON

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THE ADVANTAGES OF THE DE RIBES BAG IN OBSTETRICS.

IT may be asserted with truth that with the advent of Barnes' dilators a new era was inaugurated in obstetrical practice, and it may also be truthfully stated that even now the many practical benefits to be derived from the method of procedure which this device exemplified are not at all adequately appreciated by the great mass of practitioners. The artificial dilatation of the os uteri, in imitation of its natural opening in labor, was first practised by Klüg, by means of the sponge tent; but this method had the disadvantage of occupying an indefinite time, the irritation produced was often painful and annoying, and, worse still, the tent sometimes became a source of infection. The Barnes rubber dilators therefore constituted a very marked advance. These, however, were not without their disadvantages, and from time to time various improvements have been introduced in the means for the production of dilatation, until we now have at our command one superior in every way to its predecessors. This is the hydrostatic dilator known as the modified Champetier de Ribes bag. For those not familiar with it, it may be stated that the de Ribes bags, of five sizes, are conical in shape and made of canvas (and hence inelastic), covered with rubber, and the stem, through which normal salt solution or sterile water is injected into the bag, is very strongly attached to the apex; making it possible to make moderate traction if desired.

The largest field of application for the bags is naturally in the induction of labor, and in 1912 Dr. George L. Brodhead, professor of obstetrics in the New York Post-Graduate Medical School, who is an enthusiastic advocate of their use, published in the *American Journal of Obstetrics* a series of 139 cases in which they were employed for this purpose, and in which the results were for the most part extremely gratifying. In 90% of these, labor was induced by the use of not more than two bags, while in nearly 70% one bag was sufficient. Anesthesia for bag introduction was usually unnecessary, as shown by the fact that an anesthetic was used in only 14% of private cases and 16.6% of all cases, including hospital cases, where it was deemed advisable for clinical purposes. The two chief causes for which labor was induced were contracted pelvis (41 cases) and toxemia, including albuminuria, nephritis and eclampsia (27 cases). In seven of the cases a change in the fetal position occurred after bag introduction, and while except in one instance the change in presentation made no difference in the outcome, the possibility of this accident should be kept constantly in mind when one is using the bag method.

At a recent meeting of the Medical Association of the Greater City of New York (before which also his first paper was presented), Dr. Brodhead read a second paper on the use of the modified de Ribes bag in obstetrics, and in this he expressed the conviction that in this device we were in possession of such a valuable aid in obstetric work that we might well consider whether more extensive application could not be made of it. Although it has now been in use for a considerable number of years, it is a matter of surprise to him that greater advantage has not been taken by the profession at large of a method at once so simple and of such great value. In addition to the well-known indications for the interruption of pregnancy, he has found the bag of great service in patients where the child is large and the pelvis normal or slightly undersized. Again, he believes that in a patient at term, especially a primipara, if pains have not begun within twenty-four hours after the premature rupture of the membranes, labor should be induced with the bag. Furthermore, in primiparae especially, the child is sometimes found to be too large to pass through the pelvis, and in his opinion many children now lost might be saved by the interruption of preg-

nancy. In the treatment of antepartum eclampsia he advises that medical treatment (in which he lays stress on the value of venesection in selected cases and of veratrum more generally) should be carried out as vigorously as possible, but also that pregnancy should be terminated by the induction of labor. Inasmuch as pregnancy is the direct cause of the eclampsia, he is convinced that the uterus should be emptied within a reasonable time, not by a radical procedure, such as vaginal or abdominal section, but by the slower and more physiological method. For this purpose he combines the use of the bougie, or rectal tube, with that of the bag. In this class of cases, as so many others, the latter affords an invaluable aid in the treatment, but the condition is so urgent that its employment should be supplemented by the introduction of the rectal tube, thus making the induction of labor more certain. Whatever result the ultimate statistics of the treatment by section may show, he believes that in the hands of the general practitioner the induction of labor, combined with vigorous medical treatment, will continue to give the best results. When eclampsia develops in the early part of the first stage of labor, the method of choice is the use of the bag for the dilatation of the cervix, and in the latter part of the first stage, the application of forceps, podalic version, or, when the child is dead, craniotomy. Vaginal section is indicated, if at all, in those cases in which the cervix is very rigid and where the bag and bougie have failed, after a reasonable time, to effect softening and dilatation. In a primipara at or near term, with a small, rigid vagina and a contracted pelvis, abdominal Cesarian section would be the operation of choice.

In a considerable number of conditions there is, in Dr. Brodhead's opinion, no method of procedure comparable in results to the use of the bag. For marginal placenta previa it offers an almost ideal resource. Here the problem is how to secure full dilatation of the cervix with the least violence and loss of blood, while in no way injuring the child. One of the larger sizes should be employed, and after the cervix has been well dilated version can be performed with much greater ease and with better results for both mother and child. In central placenta previa at term, and in the marginal variety at term in primiparae, abdominal Cesarian section in the hands of competent operators, with proper surroundings, will undoubtedly give the best results; but, on the other hand, Cesarian section as a routine procedure would give a much larger mortality than the conservative treatment with the bag and podalic version. So-called accidental hemorrhage often demands the interruption of pregnancy, and here, again, the bag may offer a solution of the problem. In this instance, however, the source of bleeding is too high up to be influenced by it; so that where the hemorrhage is very profuse, or continues moderately with the bag in place, some other method of procedure is indicated, the choice lying between manual dilatation, followed by forceps or version, and vaginal or abdominal section. Finally, the bag is useful in cases of tedious labor, especially in primiparae with breech presentation; and in prolonged first stage where the patient, after many hours of suffering, has made but little progress, its introduction will frequently cause the pains to become more effective. In breech cases the breech of the child is a very poor dilator, and when the labor is proceeding very slowly there is no better method of expediting matters than by means of the bag.

MEDICAL ASPECTS OF THE SITUATION IN MEXICO.

WITHOUT actual declaration of war there has already been American bloodshed in Mexico. Vera Cruz was seized on April 22 by United States marines in conjunction with the naval fleet, and is now occupied by American troops. On the following day, the medical department of the military government began clearing the wreckage of the local Naval Academy, which was destroyed by shells during the bombardment. Much of the clothing and other contents of the building have been transferred to the Charity Hospital, where the wounded will be cared for.

Provisions for nursing in field and base hospitals are being made by the American Red Cross, which on April 23 issued the following statement:—

"In view of the Mexican situation and the duties and responsibilities that may devolve upon the American Red Cross, the people of the United States are hereby informed that the Red Cross is prepared for whatever service the Gov-

ernment may require of it as the society created by congress to furnish volunteer aid to the sick and wounded of armies in time of war and to serve as a medium of communication between the people of the United States and their army and navy.

"Attention is called to the fact that under the provisions of the treaty of Geneva, by presidential proclamation any other society desiring to render similar assistance can do so only through the American National Red Cross. Immediate preparations for fulfilling these duties are imperative. The war relief board meets April 30 to adopt a definite plan of action. This will involve heavy expenditures and the Red Cross relies upon the public for generous contributions to enable it to meet these demands. Contributions may be sent to local or state treasurers or to the Red Cross, Washington, D. C."

As yet there has been no outbreak of disease among American troops in Mexico. Probably typhus is their greatest risk, since it is endemic over the Mexican plateau, where it is locally known as *tabardillo*. There is a great deal of typhus in Mexico City, but none along the seacoast. There the disease most to be dreaded is yellow fever.

At Vera Cruz every precaution is being taken against the outbreak of any infection. One case of smallpox was discovered among refugees in the city, and extensive vaccination of nonimmunes has been instituted. Over a thousand American refugees have arrived at Galveston, Tex., and report from that city on April 27 states that three cases of small-pox have occurred among those aboard the battleship *Connecticut*. Careful quarantine has been established.

At the present writing, the likelihood of mediation makes further hostilities seem improbable. In the event of their occurring, however, every preparation has been made by the army medical corps to establish hospitals in the rear of troops advancing inland. The plan of distribution of these hospitals will be as follows:—

"Each division, which is made up of four brigades, will have four field hospitals. In each hospital are 108 beds. In the rear of the field hospitals will be an evacuation hospital, which will hold twice as many beds as a field hospital. Behind the evacuation hospital, fifty or one hundred miles—it depends on the position—will be the base hospital. To each field hospital are five surgeons, to each ambulance corps three surgeons, to each regiment four medical officers and twenty-two members of a hospital corps, and to each division a chief surgeon and a chief sanitary inspector."

On the part of the Mexicans there is said to be considerable difference in degree of medical efficiency. The medical department of General Villa's constitutionalist army is in command of Dr. Andres Villareial, a graduate of Johns Hopkins. It has a well equipped hospital train, capable of caring for 1400 patients for 40 days, and a modern field hospital with an abundance of trained nurses. The medical department of General Huerta's federal army, on the contrary is poorly officered, ill-equipped, and inefficient.

In the event of war, the American loss from disease should be proportionally the lowest that has ever been observed. In the first Mexican War, of 1848, the total American loss from disease was 6408, while the loss from wounds received in battle was about 5000.

MEDICAL LEGISLATION. REORGANIZATION OF THE STATE BOARD OF HEALTH.

Governor Walsh, with the assistance of men eminent in public health work both in the state and in the nation, has drawn up a bill to create a state department of health and to modify the existing health laws in Massachusetts. This bill conforms closely to the suggestions made in the Governor's inaugural message and also to the general principles of certain recommendations made previously in these columns. The Governor's bill has the enthusiastic endorsement of a considerable body of medical men with whom he has been in consultation.

The bill calls for a single, highly paid commissioner of health with an advisory unpaid public health council. The Governor is wise enough to appreciate that mere organization, though important, is but the vehicle for the introduction and execution of health measures. Consequently his bill gives somewhat wider and better defined powers to the health department than the state board of health has enjoyed in the past.

Since the time has apparently come for a reorganization of the state health department, it is very gratifying that Governor Walsh has risen to the opportunity of attempting to create as good a department as is possible under the circumstances. The broad minded manner in which he has obtained the advice of eminent ex-

perts is particularly commendable. This bill, now in somewhat rough form, will be discussed in detail in subsequent issues of the JOURNAL. From present indications the bill should receive the hearty support of the medical profession.

MEDICAL NOTES.

ERADICATION OF UNCINARIASIS IN CENTRAL AND SOUTH AMERICA.—The Rockefeller Commission for the Eradication of Hookworm Disease, it is announced, is to extend its field of activity into Central and South America; and Dr. Joseph H. White, of the United States Public Health Service, is to superintend this work.

PNEUMONIC PLAGUE IN TOKYO.—Report from Tokyo, Japan, on April 24, states that pneumonic plague is at present epidemic in that city, and that many deaths from it have occurred.

BUBONIC PLAGUE IN CUBA.—Two more cases of bubonic plague were reported in Cuba on April 22, one in Havana, the other at Artemisa, a small neighboring town. This makes a total of 12 cases since the beginning of the outbreak several weeks ago.

INTERNATIONAL CONGRESS ON CHILD WELFARE.—The third International Congress on Child Welfare was held from April 23 to 25, inclusive, at Washington, D. C. At the opening session, Miss Julia C. Lathrop described the work of the children's bureau of the United States department of labor, and Mrs. Frederick Schoff, of Philadelphia, reported the work of the national congress of mothers and parent-teachers, of which she was president. On April 24, Professor E. A. Kirkpatrick, of Fitchburg, Mass., read a paper on "Training Children in Financial Responsibility"; and Dr. Helen C. Putnam, of Providence, R. I., on "Twentieth Century Motherhood." Mr. Nathan Straus of New York described the work of the milk stations in that city, whose infant mortality under five years has fallen from 96.5 per 1000 in 1891 to 37.3 per 1000 in 1913.

BOSTON AND NEW ENGLAND.

MEASLES IN NEWPORT BARRACKS.—Report from Newport, R. I., on April 26 states that 5 cases of measles have recently occurred among men in the naval training station barracks at that port.

A CENTENARIAN.—Patrick Welch, who died at Brighton, Mass., on April 23, is said to have been born early in 1814 in Ireland. He migrated as a boy to Montreal, and thence came to Brighton in 1842. He is survived by five of his eleven children. He attributed his protracted longevity and good health to his lifelong habit of total abstinence from tobacco and alcoholic liquors.

FITCHBURG BOARD OF HEALTH.—The recently published twenty-fourth annual report of the board of health of the city of Fitchburg, Mass., records the activities of that body for the calendar year 1913. It contains also the reports of the agent of the board, the bacteriologist, the school physicians, the school nurse, the inspectors of milk, plumbing, meats, provisions, and slaughtering. The total death-rate of the city was only 13.38 per 1000 inhabitants, and the infant death-rate, under one year, was only 103.3 per 1000 births.

VISIT OF FOREIGN SURGEONS TO BOSTON.—On Monday and Tuesday of last week, April 27 and 28, a number of foreign members of the International Surgical Association, whose fourth triennial convention has recently been held in New York, visited Boston as guests of the local members of the American Surgical Association. Operations, demonstrations and receptions were held at the various hospitals, at the Harvard Medical School, and at Harvard College, Cambridge. On Monday evening a dinner was given at the Copley-Plaza Hotel.

A MEDICAL MEMORIAL TO DICKENS.—On April 29 the All Around Dickens Club, of Boston, celebrated its twentieth anniversary by dedicating a free bed in memory of Charles Dickens at the new Children's Hospital.

HOSPITAL BEQUESTS.—The will of the late Eliza E. Hobbs, of Waltham, Mass., which was filed on April 25 at the Middlesex registry of probate, contains bequests of $5000 to the Waltham Hospital, $1000 each to the Waltham Baby Hospital and the Waltham Training School for Nurses, and $500 to the Waltham District Nurses' Association.

The will of the late Benjamin F. Keith, of Boston, which was filed on April 25, in the Norfolk Probate Court at Dedham, Mass., contains a bequest of $5000 to the Boston Floating Hospital.

Cases of infectious diseases reported to the Boston Board of Health for the week ending April 28, 1914: Diphtheria, 52; scarlatina, 101, of which 16 were non-residents; typhoid fever, 3; measles, 89, of which 2 were non-residents; tuberculosis, 51.

The death-rate of the reported deaths for the week was 17.22.

NEW YORK.

Pure Food Investigation.—At a meeting of the recently organized food and drugs department of the National Civic Federation, held on April 26, an investigation, embracing the entire country, into the methods of handling products as regards pure food principles, cleanliness, right labeling, and honest advertising, was decided upon, in order to determine the lines on which the federation can work to the best advantage in securing pure foods and drugs for the American people. The chairman of the committee which has charge of the proposed investigation is Vincent Astor, and among the members are Dr. C. A. Alsberg, chief of the bureau of chemistry, United States Department of Agriculture; Dr. S. S. Goldwater, commissioner of health, New York City; and J. H. Wallis, president of the Association of American Dairy, Food and Drug Officials. The plan of operations includes the sending out of a list of questions to federal and state food, drug and dairy commissioners, state and municipal health officials, professors of chemistry in universities and colleges, agricultural chemists, and representative dealers in foods and drugs throughout the country.

Election of Dr. Park.—On April 27 Dr. William Hallock Park, director of the research laboratories of the New York City Health Department, and a pathologist and bacteriologist of international reputation, was unanimously elected by the Council of New York University dean of the University and Bellevue Hospital Medical College, to succeed the late Dr. Egbert Le Fevre. For a number of years Dr. Park has been professor of bacteriology and hygiene in the college, and he was recommended for the position of dean by Prof. William H. Welch of Johns Hopkins University, Dr. Simon Flexner of the Rockefeller Institute, and other high authorities.

Death from Typhus Fever.—On April 27 the first death occurred among the typhus fever patients at Swinburne Island, Quarantine Station. The patient was a Greek who had embarked on the steamer *Madonna* at Naples. Since January 7, 19 typhus patients have been received at Quarantine, and all the cases are stated to have occurred among soldiers who had been in the Balkan wars.

Honor for Dr. Flexner.—Dr. Simon Flexner, director of the Rockefeller Institute, has been notified by the French ambassador at Washington that the Cross of Chevalier of the Legion of Honor has been conferred upon him by President Poincaré. This honor has been bestowed, it is stated, in recognition of the services rendered to medical science by Dr. Flexner through his own discoveries and his admirable administration of the institute. In the award special mention is made of the assistance given to France, at the time of the epidemic of cerebrospinal meningitis there, by the sending to the Pasteur Institute in Paris of a supply of the new anti-meningitis serum, which was successfully employed in combating the disease.

Award of Seaman Medal.—On April 28 the Louis Livingston Seaman medal of the American Museum of Safety was presented to Surgeon General William C. Gorgas, in recognition of his great sanitary work in the Panama Canal Zone. The speech of presentation was made by Prof. F. H. Hutton of Columbia University, and other speakers on the occasion were Arthur Williams, president of the museum, Dr. N. E. Ditman, and Dr. Seaman, the donor of the medal, as well as Gen. Gorgas himself.

Appointment of Dr. Janeway.—It is announced that Dr. Theodore C. Janeway, Bard professor of the practice of medicine in Columbia University, has accepted the professorship of medicine in Johns Hopkins University, Baltimore, recently offered him, under the full time basis made possible by the gift to the University of $1,500,000 by the General Education Board. It is stated that Dr. Llewellys F. Barker, who succeeded Sir William Osler in the chair of

medicine, was unable to remain in the position under the new conditions, but will continue his service at the Johns Hopkins Hospital.

DEATH-RATE FOR WEEK ENDING APRIL 25, 1914.—There were 1637 deaths and a death-rate of 15.30 per 1000 of the population reported during the past week as against 1677 deaths and a rate of 16.28 for the corresponding week in 1913, a decrease in the absolute number of deaths of 40 and in the rate of .98 of a point, a relative decrease of 105 deaths. The following causes showed material deductions: Measles, diphtheria and croup, whooping cough, diarrheal diseases under five years of age, acute bronchitis, lobar and broncho-pneumonia, pulmonary tuberculosis, Bright's disease and nephritis. The causes showing an increased mortality were scarlet fever (the mortality from this cause being double that of the corresponding week of last year), forms of tuberculosis other than pulmonary, diseases of the nervous system and violence. Viewed from the point of age grouping, there were 28 less deaths of infants under one year, 17 less between one and five years of age, 25 less between five and sixty-five years of age, and 30 more over the age of 65. The borough of Richmond showed the highest mortality, due in great measure to the unfavorable distribution of the age grouping of the population and the presence of several large institutions, the inmates of which are chiefly non-residents. The second highest mortality was that of the borough of Manhattan, then followed borough of Brooklyn, borough of Queens and the borough of The Bronx in the order mentioned. The death-rate for the first 17 weeks of this year was 15.46 per 1000 of the population as against a rate of 15.68 during the corresponding week in 1913, a decrease of .22 of a point.

A GOOD VETO.—Report from Albany on April 25 announces that Governor Glynn has vetoed the bill, recently passed by the state legislature, permitting unlicensed practise by Christian Scientists, chiropractors, and naturopathists. In his veto message the Governor said in part:—

"This bill is advocated by Christian Scientists. If it simply allowed Christian Science healers to practise among the followers of Christian Science, there might not be serious objection to it; but it opens the gates to all kinds of medical pretenders, who as a matter of fact 'administer to or treat the sick or suffering without the use of any drug or material remedy' and who, if this bill were approved, would swarm across our borders and pretend to practise medicine upon our citizens."

RESEARCH WORK IN GENETICS.—At the meeting of the Eugenic Section of the American Breeders' Association at Palmer, Mass., in 1911, a research committee was appointed "to study and to report on the best practical means of cutting off the defective germ-plasm in the American population. This committee has recently issued from Cold Spring Harbor, Long Island, the headquarters of the Eugenics Record Office, two bulletins, one (No. 10A) on "the scope of the committee's work," and one (No. 10B) on "the legal, legislative and administrative aspects of sterilization." The committee is still working and no doubt other bulletins will follow. Meantime the organization has changed its name to the American Genetic Association.

NEW YORK STATE MEDICAL SOCIETY.—At the 108th annual meeting of the Medical Society of the State of New York, held in New York Apr. 28-30, the following officers were elected: President, Dr. Grover Dende of Buffalo; first vice-president, Dr. Myron B. Palmer of Rochester; second vice-president, Dr. Samuel W. S. Toms of Nyack; third vice-president, Dr. Robert M. Elliott of Willard. Dr. W. R. Townsend of New York was reëlected secretary, and Dr Alexander Lambert of New York, treasurer. The annual dinner of the society was given at the Hotel Astor on April 29, and was attended by more than eight hundred physicians. The toastmaster was the retiring president, Dr. William F. Campbell of Brooklyn, and among the speakers was Dr. Wilfred Grenfell of Labrador.

Current Literature

MEDICAL RECORD.

APRIL 18, 1914.

1. SCHROEDER, H. H. *Syphilis in Relation to Life Insurance.*
2. MEYER, A. *Present Status of Typhoid Immunization in the Hospitals and Training Schools of New York.*
3. NEUSTAEDTER, M. *A Case of Facial Hemiatrophy.*
4. PALEFSKI, I. O. *Visualization of the Upper Intestinal Tract by Means of Roentgen Rays in Conjunction with the Use of the Duodenal Tube.*
5. AUSTIN, C. K. *On the Iso-Serum Treatment of the Incoercible Vomiting of Pregnancy.*

6. BENEDICT, A. L. *Cancer Statistics.*
7. STRAUCH, A. *Epidemic Icterus.*

NEW YORK MEDICAL JOURNAL.

APRIL 18, 1914.

1. SYMS, P. *Operative and Postoperative Treatment of Appendicitis.*
2. KAKELS, M. S. *The Operative Mortality in Appendicitis.*
3. RING, G. O. *The Association of Systemic Disease with Metastatic Ophthalmia.*
4. PALEFSKI, I. O. *Pursestringing of the Small Intestines into a Distance of Fifty Centimeters.*
5. SMUKLER, M. E. *Cardiospasm, with Dilatation of the Esophagus.*
6. SMITH, H. *Lymphosarcoma.*
7. MACWHINNIE, A. M. *Two of the Present Day Fads.*
8. KENERSON, V. *Marked Improvement in Tabes.*
9. TODD, J. B. *Ventilation.*
10. MAYO, W. J. *Chronic Ulcers of the Duodenum.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

APRIL 18, 1914.

1. *HARRIS, M. L. *Constrictions of the Duodenum Due to Abnormal Folds of the Anterior Mesogastrium.*
2. DYAS, F. G. *The Treatment of Acute Osteomyelitis of the Long Bones by Means of the Dental Engine and a Large Burr. Preliminary Report.*
3. *HARE, H. A. *Three Cases of Wiring with Electrolysis for Aortic Aneurysm. One Heretofore in Part Reported.*
4. ULRICH, H. L. *Some Notes on Hay-Fever.*
5. *MACLEOD, J. J. R. *Recent Work on the Physiologic Pathology of Glycosuria.*
6. HOWELL, A. A. *Possibilities in the Use of the Auscultatory Method of Determining Blood-Pressure in Pneumonia.*
7. CRAIG, C. F. *Variations in the Strength of the Wassermann Reaction in Untreated Syphilitic Infections.*
8. *KILGORE, A. R. *The Luetin Cutaneous Reaction for Syphilis.*
9. NUZUM, F. *Retro-Aortic Left Renal Veins.*
10. CRAIG, H. K. *A New Method of Preparing Museum Specimens.*
11. GOODMAN, E. H. *Hemothorax Caused by Rupture of a Dissecting Aneurysm. Recovery.*
12. *EISING, E. H. *The Disappearance of Sugar in Diabetics after Certain Pelvic Operations.*
13. LAVENSON, R. S. *The Responsibility for the Failure to Diagnose Tuberculosis in Its Early Stages.*
14. DODD, V. A. *The Protection of Granulations. A New Dressing Material.*
15. FENGER, F. *Distinction Between the Corpus Luteum of Ovulation and the True Corpus Luteum of Pregnancy. Preliminary Report.*
16. MCCORD, C. P. *The Frequency of Pregnancy in Slaughter-House Cattle in Relation to the Supply of Corpus Luteum.*
17. SMITH, L. D. *A Simplification of the Gram Stain.*

1. Harris describes six very distinct cases in which a fold or band passed from the gall bladder down over and constricting the second part of the duodenum and produced a definite set of symptoms resembling those of duodenal ulcer. These cases were all permanently relieved by division of this band at operation. Harris describes this band as the abnormal remains of the caudal edge of the ventral mesogastrium, or by some called the great omentum hepatocolicum.

2. Dyas' use of a large dental burr in drilling out diseased bone in osteomyelitis seems like a very rational procedure and a decided advance in technic, as the operator can work more rapidly and at the same time with less danger of damaging normal bone and leaves no rough spicules or ragged edges.

3. Hare, after having operated on twenty-five cases of aneurysm by wiring and electrolysis, claims that this is the only method sure to give relief in aortic cases. He does not consider it a dangerous operation. He uses a yellow gold wire.

5. Macleod's article is not suited for abstracting, but is a very thorough review of experimental work on glycosuria.

7. Craig finds marked variations in the strength of the Wassermann reaction from day to day in untreated syphilitic cases and believes therefore justly that a single negative or doubtful Wassermann reaction is of no value in excluding syphilis. He goes into some detail to explain the reasons for this variation. The paper is a suggestive one.

8. Kilgore found the luetin test of practical value in a few cases of late syphilis (4 out of 36), in which it was positive when the Wassermann was negative.

12. Eising finds evidence that prostatectomy and hysterectomy in diabetes of long duration is occasionally followed by subsidence or total disappearance of the sugar output. No plausible explanation is at hand. [E. H. R.]

THE LANCET.

APRIL 4, 1914.

1. OLIVER, T. *Medico-Social Problems from an Insurance Point of View.*
2. *WHITEHOUSE, H. B. *Hunterian Lecture on the Physiology and Pathology of Uterine Hemorrhage. Concluded.*
3. *CROFTON, W. M. *Some Causes of Failure of Vaccine Therapy.*
4. *DAVIES, H. M. *The Operative Treatment of Pulmonary Tuberculosis.*
5. *JORDAN, A. C. *Some Points in the Diagnosis of Pulmonary Tuberculosis by the X-rays.*
6. COOPER, G. *A Case of Thoracic Aneurysm of Unusual Size.*
7. KEILLER, D. W. *Extrathoracic Aneurysm of the Transverse Arch of the Aorta.*

2. In this second Hunterian Lecture, Whitehouse discusses pathological uterine hemorrhage, taking up the factors involved in excessive bleeding, the relation of the endometrium to this, and the importance of investigating the menstrual discharge. He then takes up hemorrhage at puberty and at the menopause, and then considers hemorrhage in relation with organic disease of the internal sexual organs and the treatment of such conditions.

3. Among the causes for the failure of vaccine therapy, Crofton mentions (1) failure of patient to react (2) failure to diagnose the infecting organisms, (3) incomplete immunization, (4) failure to give the doses at the proper intervals.

4. This is a very brief discussion of artificial pneumothorax in pulmonary tuberculosis, with a mention of other more radical measures.

5. Jordan, in his usual interesting, but somewhat over-enthusiastic view, urges the x-ray as the only means of making the true early diagnosis of phthisis, and argues in favor of this "peribronchial phthisis." Early diagnosis has been kept back for years, he states, because it has been the custom to use and depend on the stethoscope and to look at the apices for the initial lesion. (His remarks applied to children are of interest and value; in adults they are interesting, if true.—J. B. H.). [J. B. H.]

BRITISH MEDICAL JOURNAL.

APRIL 4, 1914.

1. RUSSELL, R. H. *Lister: The Laboratory and the Bedside.*
2. *SIMSON, H. J. F., AND BERNSTEIN, J. M. *Remarks on Infection by B. Coli in the Puerperium and on the Infective Conditions of Pregnancy.*
3. CASTELLANI, A., AND PHILIP, M. *Plague in Ceylon.*
4. KISCH, H. A. *An Instrument for the Detection of Slight Degrees of Nasal Obstruction.*
5. RYLAND, A. *A Case of Temporo-Sphenoidal Abscess in the Course of Chronic Otitis Media.*
6. TIBBLES, S. G. *Two Cases of Ocular Disease Associated with Pyorrhea Alveolaris.*
7. *SHUFFLEBOTHAM. *The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. Lecture V. Beat Hand, Knee, Elbow and Buttock.*

2. The writers discuss the symptoms and diagnosis of puerperal infection with B. coli, and the prognosis and treatment of this condition. They are strong advocates of vaccine treatment, the details of which, with illustrative cases, they describe.

7. In the fifth Milroy Lecture, the writer describes "beat hand, knee, elbow and buttock." "Beat hand" is an acute inflammation of the subcutaneous tissue of the palmar surface of the hand and fingers, without history of injury, infection taking place through a slight abrasion often quite unnoticed. The course depends on its treatment, neglected cases often leading to a general septic condition of the hand. On the average 700 to 800 cases are reported each year. The treatment is that of any acute infection of a mild nature. Beat elbow, knee and buttock are similar conditions. He continues to discuss tenosynovitis of the wrist, and miners' itch or rash. This last consists of an erythematous or pustular eruption over areas chiefly exposed to coal dust and other sources of irritation. It occurs in certain pits or seams far more frequently than in others. In concluding his lecture, Shufflebotham discusses the Workmen's Compensation Act and further legislation needed to protect the miners' health. [J. B. H.]

BERLINER KLINISCHE WOCHENSCHRIFT.

NO. 6. FEBRUARY 9, 1914.

1. *VULPIUS, O. *A New Bone Operation for Paralysis of the Forearm.*
2. SÖDERBERGH, G. *Some Remarks on the Localization of Tumors of the Spinal Cord.*
3. CEASER, E. *An Epidemic of Poliomyelitis in the Spring of 1912 in Lindaas, Norway.*
4. FÜHNER, H. *The Hypophysis and Its Active Elements.*
5. *GEPPERT, F., AND SIEGFRIED, K. *Mesenteric Thrombosis in a Case of Latent Phlebosclerosis of the Portal Vein.*
6. HALBERSTAEDTER, L. *Experimental Work on the Effect of Radium on Trypanosomes.*
7. PIORKOWSKI. *Experiences with the Serum Diagnosis of Cancer.*
8. PROSKAUER, A. *Chromophile ("Chromatophore") Cells in the Nasal Mucous Membrane.*
9. ROTHFELD, J. *The "Oto-Ophthalmotrop," a New Instrument.*
10. LAZARUS, P. *Present Status and Future Aims of Radium—and Mesothorium—Therapy.*

1. In order to overcome the pronation which ordinarily results from both flaccid and spastic paralysis of the forearm, and thus to enable the patient to perform acts otherwise impossible, such as putting a fork or spoon into the mouth, Vulpius has devised two operations for fixing the bones in a position midway between pronation and supination. The first consists in turning a bone flap across from the radius and suturing it firmly to an area on the ulna which has been denuded of periosteum, following which procedure the arm is held fixed for ten weeks. The other method is to use a graft from the tibia, the principle of the operation being the same as in the first-mentioned. The author has been successful in both methods, and the patients have been able to do much more with the arm.

5. This is an unusual and interesting case,—a man of 40, in presumably perfect health, strong and rugged, was seized with violent cramps in the upper abdomen, with no temperature, no spasm or tenderness, no palpable tumor, no mass of any sort, and no vomiting till just before death, which occurred in collapse three days after the onset. Perforating ulcer and obstruction were ruled out, and though it seemed in some respects like tabes, the history was negative for lues. The whole case was very obscure. He was not operated on because the indications were not at any time clear, and when he began to go into collapse it was too late. Autopsy revealed gangrene of about one meter at the upper end of the jejunum, with fresh mesenteric thromboses in the radicles of the superior mesenteric vessels supplying this part of the gut, and an old chronic proliferative pylephlebitis. This condition has been reported several times before, and its etiology is obscure. In this case the mesenteric thrombosis was directly due to the process in the portal vein. [R. H. M.]

NO. 7. FEBRUARY 16, 1914.

1. KOCH, J. *Investigations on the Localization of Bacteria and the Changes in Bone and Bone-marrow in Infectious Diseases in Childhood.* (*To be continued.*)
2. *SCHÜLLER, H. *The Effect of Radium on Tumors of the Spleen.*
3. NEUMANN, W. *The Cure of Complete Cleft Palate.*
4. LEHMANN, R. *Acute Otitis Media with Secondary Meningitis and Paralysis of the Abducens Nerve.*
5. BRAUN, H. *Trypanosome Infections of Animals in German East Africa.*
6. TEICHMANN, E. *Experiments in the Transmission of Trypanosomes by the Glossina (Tsetse Fly).*
7. RABINOWITSCH, M. *The Etiological Factor of Smallpox.*
8. POSSEK, R. *"Embarin" as a Therapeutic Agent in Ophthalmology.*
9. WECHSELMANN, W. *The Study of the Importance of Having the Proper Aqueous Vehicle for Salvarsan.*
10. DAVIDSOHN, F. *Technic of Radium Treatment of Deep Tissues.*
11. THOMSEN, O. *Experiments in Poliomyelitis.*

2. Schüller reports 4 cases of splenic tumor—2 of myelogenous leukemia, 1 of Banti's disease, and 1 of "aleukemic adenomatosis,"—treated by radium, mesothorium and rademanit, with distinct improvement in every case. The splenic tumor not only decreased in size, but the blood picture was more nearly normal and the general symptoms were alleviated. In the case of Banti's disease splenectomy was done following marked shrinkage of the spleen after the radium treatment. Besides claiming for radium the qualities above mentioned, the author states that it is active in cases where the Roentgen ray has failed; and that it causes so much decrease in the size of the spleen that it is a valuable measure to precede splenectomy. [R. H. M.]

Wiener Klinische Wochenschrift.

No. 2. January 8, 1914.

1. Elias, H. *Irritability of Nerves in Relation to Acids.*
2. *Kroiss. *Conservative Operation for Intermittent Hydronephrosis.*
3. v. Massari and Kronenfels, G. *Surgical Experiences from the Two Balkan Wars.*
4. Ruppert, L. *Cranial Heteroplastic Surgery with Celluloid; a Result of Twenty Years' Duration.*
5. Moczuiski, J. *Clinical Observations on the Inhalation of Tincture Strophanthus in Cardiac Insufficiency.*

2. The author states that the functional capacity of injured kidney tissue is usually very much underestimated and therefore leads to nephrectomy in cases where a conservative operation might restore the function of the organ. This is true especially in cases of intermittent hydronephrosis and pyelonephrosis, in which an operation establishing free drainage removes the pathological condition and restores normal function of the organ. The technic is difficult, but not impossible. He cites a number of operated cases with restored function, and no untoward secondary complications. Radical nephrectomy should be undertaken in his opinion only after an attempt and failure of the conservative, or in cases where the kidney parenchyma is so far destroyed as to make it useless. [F. S. K.]

No. 3. January 15, 1914.

1. Goldschmidt, W., and Philipowitz, N. *The Bassini Operation.*
2. *Stolper, S. *Atropin Treatment of Dysmenorrhea.*
3. Englemann, G. *The Relation Between Left Scoliosis in Infants and the Position in Which They are Carried.*
4. Ettinger, W. *Three Cases of Malaria with Unusually Severe Symptoms.*
5. Fruhwald, V. *Two Cases of Perichondritis of the Thyroid Cartilage.*

2. The author explains the failure of atropin treatment in certain cases of dysmenorrhea by their etiology. He distinguishes two groups of dysmenorrhea, those that show definite vagotonic symptoms, in which the blood pressure is normal or nearly so; those that show no vagotonic symptoms, but rather circulatory disturbances, with an increase in blood pressure. In the first group atropin is of use; it fails in the second. These must be treated according to the underlying cause. [F. S. K.]

Obituary.

CHARLES PICKERING PUTNAM, M.D.

Dr. Charles Pickering Putnam, who died on April 23 last in his seventieth year, was born in Boston September 15, 1844. He was the son of Charles Gideon Putnam, M.D., and Elizabeth Cabot Jackson, both of Boston, and grandson of Dr. James Jackson. He graduated from Harvard College in 1865 and from the Harvard Medical School in 1869; continued his medical studies for a time in Germany, and began the practice of his profession in Boston in 1871. Since that time he had carried on a general practice, though for many years he made a specialty of pediatrics and did some excellent pioneer work in orthopedics. He was a lecturer at the Harvard Medical School on diseases of children from 1873-75 and a clinical instructor on that subject 1875-79. He served the Boston Dispensary as district physician from 1871-1873 and as orthopedic surgeon 1873-76. In 1898 he was elected president of the American Pediatric Society.

Dr. Putnam had been since the beginning of his practice of medicine a leader in charitable and social work,—almost from the beginning the most important leader of such work in Boston, the first to take hold and the last to let go of each new and important enterprise.

Dr. Putnam was one of the founders, in 1873, of the little-known but extremely important Boston Society for the Relief of Destitute Mothers and Infants, which was a pioneer in establishing the policy of keeping mother and child together, and was president of the society from 1904 until his death. In 1875 he became physician to the Massachusetts Infant Asylum, and from 1898 to 1910 he was also president of the board of trustees. The ordinary death-rate in such institutions was at that time something over ninety per cent. a year. The Massachusetts Infant Asylum had already brought the rate down to less than a quarter of that figure when Dr. Putnam became connected with it, and he by his skill and devotion again reduced it by two-thirds or more. He was one of those who in 1879 took part in the movement for establishing the Associated Charities, the second charity organization society in this country; and he was always one of the sustaining members of that society in the real, not the conventional, sense, working in many capacities, as president of a conference, as director, as chairman of many committees, including the present important one on inebriety, and, since 1907, as president.

From 1892 to 1897 Dr. Putnam took a leading part in the very important movement for the reorganization of the Boston Institutions for the care of prisoners, of the poor, and of poor, neglected, and delinquent children, being on the special committee appointed by Mayor Matthews in 1892, chairman of the board of visitors of 1893-94, chairman of the standing committee on pauper institutions of the advisory board appointed by Mayor Quincy in 1896, a steady fighter for the reorganization bill of 1897. When the new system of separate unpaid boards of trustees was established he was appointed a member of the Board of Children's Institutions, and was its chairman from 1902 to 1911, performing in that capacity a great and harassing, though invisible and unappreciated, service to his fellow-citizens.

Dr. Putnam was among the earliest supporters of Dr. James R. Chadwick in founding the Boston Medical Library, of which he was an original member in 1875, an incorporator in

1877, and which he served upon important committees until his death. He helped to organize and carry on the Directory of Nurses. He was active in the campaign against tuberculosis and a director of the Mental Hygiene Association. He was one of the first to take up broad social questions from the legislative end, was the first experienced charity worker to enlist in the Massachusetts Civic League, and helped secure the establishment of the State Board of Insanity, the taking over of the Boston Insane Hospital by the state, medical inspection in the public schools of Massachusetts, playgrounds, better probation service, the juvenile court, better laws dealing with tramps, with drunkards, and many others.

In short, Dr. Putnam was for a generation the backbone of social work in Boston. We have all looked to him to do the hard things—to take up the new line at which the timid balked and which the unimaginative could not see, sustaining the old from which the glamor had worn off, stiffening up the weak places, making the hard decisions. He was here, as in all things, a man to accept responsibility, take the burden on himself, and carry it,—a patient and successful physician to the community as well as to the child.

Dr. Putnam's most distinctive characteristic was the power of enlistment. In each of the many services he undertook it seemed to those he served and to his fellow workers as if that must be the only thing he had to do. There are in every enterprise the helpful men, the wise, the brilliant men, the steady workers. And then there are the essential men, those without whom the thing will not be done. In an extraordinary number of instances Dr. Putnam was among these last. Whatever happened, however badly things might go, whoever else became lukewarm or discouraged, his associates knew that he, at least, would see the thing through, that he had enlisted for the war, intended doing as much, be it more or less, as might be necessary. The time at his disposal seemed always to be infinite, and he had no observable bias as to hours. There is no evidence, known at least outside his immediate family, that he ever ate or slept, and three in the morning was apparently the same to him as three in the afternoon.

Dr. Putnam was a remarkably resourceful man and would reconstruct his patients' world, physically as well as morally, by his calm assumption that anything needed could be done, and in hundreds of cases by doing the most impossible parts himself. Slower minds thought him slow at laying the first brick, whereas he had completed the whole structure in imagination, and was hesitating what kind of chimney-pot to use.

Dr. Putnam had a fairy godmother quality, as many of us know. I remember on my first visit to his much-loved shanty in the Adirondacks I came to believe that if, when walking up a mountain, you happened to want anything, from a piece of maple sugar to a volume of Shakespeare or a box of paints, you had only to look under the nearest stump and you would find that Dr. Putnam had anticipated exactly that need at that particular spot.

To many of those who saw him, Dr. Putnam's impersonation of the policeman at the Charity Workers' ball a year or two ago (I personally took him for a real cop), and of the very "disturbed" patient who brought down the house upon the same occasion, was a revelation of an unsuspected quality. His sense of humor, indeed, lived always just beneath the surface. I once saw him "cure" a small child's hands by putting on them a couple of envelopes as mittens.

And the best was the power behind it all in the great kind heart, that would see and know only the best, and, with a quality like the sun, could see only light wherever it was turned.

MEMORIAL.

DR. CHARLES PICKERING PUTNAM.

THE committee on library and finance of the Boston Medical Library, at its regular meeting on Monday, April 27, desires in behalf of the Library to place on record an expression of its profound sense of the great loss the Library has sustained through the death of Dr. Charles Pickering Putnam, which took place after a brief illness on Wednesday, April 22.

Dr. Putnam was one of the five surviving charter members of the Library, and the only one who had served it continuously from the time of its incorporation in 1877. He was a member of the executive committee and of the committee on library and finance from the beginning of the Library. In 1879 a committee was appointed to provide for the registration of nurses at the Library. Dr. Putnam was one of the two constituting this committee and continued this service, latterly alone, with rare persistency and self sacrifice up to the present time. He had served on other committees at one period and another, and at the time of his death was the second member of the library committee, of which the librarian is the chairman. He was not only a member of committees but, notwithstanding his various occupations, was diligent in attendance and in the discharge of duties.

Dr. Putnam's service to the Medical Library from the point of view of continuity and devotion is peculiarly comparable with his service to the Associated Charities of Boston, which be helped to establish in 1879, to incorporate in 1881, of which he was vice-president from 1881 to 1907, and president from 1907 to the present.

Dr. Putnam's highly useful and unselfish activities were extended in many directions, in

all of which they were much appreciated and will be greatly missed.

Resolved, That this memorial expressing our sense of loss at the death of our colleague be spread upon the records of the Library and that copies be sent by the secretary to the family of Dr. Putnam and to the BOSTON MEDICAL AND SURGICAL JOURNAL.

Miscellany.

AMERICAN SOCIETY FOR CONTROL OF CANCER.

A PUBLIC meeting was held in St. Louis on Friday evening of last week, May 1, by the American Society for the Control of Cancer in conjunction with the St. Louis Medical Society.

"The general subject of the evening was 'The Prevention and Control of Cancer.' Hon. Charles Nagel, formerly Secretary of Commerce presided and his introductory remarks dealt with the importance of educating the public in regard to this disease. The first address was given by Frederick L. Hoffman, LL.D., statistician of the Prudential Insurance Company of America, whose subject was 'The Menace of Cancer.' He was followed by Dr. William F. Rodman of Philadelphia who discussed the prevention of cancer by the correction or removal of irritated parts, the control of cancer by early recognition and treatment, and the value of radium as compared with surgery.

"Dr. Leo Loeb, vice-president of the International Association for Cancer Research, explained the importance of cancer investigation and research, and Curtis E. Lakeman, executive secretary of the American Society for the Control of Cancer, described the purpose and plans of this national organization and the educational methods employed."

Similar educational meetings have already been held in New York, Chicago, Pittsburgh, and Portland, Me., and others are to be arranged for in Boston and New Orleans.

"The Cancer Society has recently made special efforts to enlist the coöperation of nurses and nurses' organizations in its work. It is believed that the instruction of nurses as to the essential facts in regard to cancer, particularly in women, will be of special value in leading to a more general dissemination of information in regard to the symptoms, diagnosis, treatment and prevention of this disease, and the great importance of early recognition and operation. A circular letter was sent to all nurses' training schools, clubs and settlements in New York City, asking that lectures to nurses on this subject be arranged. Favorable responses were received and recently the first of a series of meetings and lectures for nurses was held at the Henry Street Settlement, of which Miss Lillian D. Wald is head worker. About eighty nurses of the settlement staff were present. Another meeting will be held in May for the benefit of the several hundred visiting nurses of the New York City Department of Health.

"These facts have been submitted by the Cancer Society to the three national nursing organizations now meeting in joint convention at St. Louis, namely, The American Nurses' Association, The National League of Nursing Education, and the National Organization for Public Health Nursing, and the official coöperation of the nursing profession throughout the country is hoped for."

TRANSFER OF SURGEON-GENERAL'S LIBRARY.

AT a stated meeting of the committee on library and finance of the Boston Medical Library, held April 27, 1914, said committee having under its by-laws entire charge of the finances and of the management of the Library, it was,

Resolved, That the Boston Medical Library, a duly incorporated institution of Massachusetts, having a membership of 700 physicians in Greater Boston, funds amounting to over $500,000, and a library of 80,000 volumes and 56,000 pamphlets, having learned of the proposed amendment to the Army Appropriation bill that passed the Senate March 28, 1914, providing for the transfer of the library of the surgeon-general's office to and to become a part of the Library of Congress, wishes hereby to express its opposition to this amendment because the library of the surgeon-general's office comprising the largest collection of medical and surgical books in existence is, with its index catalogue, an inexhaustible mine of scientific information which through the liberal policy observed in the past, has been at the service of the entire medical profession of the United States. Merging the library with the Library of Congress could not fail to destroy its identity and to injure its usefulness to the medical profession of the country. The Boston Medical Library has in the past had frequent recourse to the national library to provide its research scholars with books not in our collection, and has looked to it as the repository from which comes all that is best in medical literature. Therefore, the Boston Medical Library is unalterably opposed to the proposed transfer, and hopes that the amendment will not become law.

The Appropriation bill is now in the hands of the conference committee of the Senate and House, and may appear in the House for action at any time.

It was therefore voted that copies of this resolution be sent to the following: Hon. Henry Cabot Lodge, Hon. John W. Weeks, Hon. Andrew J. Peters, Herbert Putnam, librarian of congress; Surgeon-General, U. S. A.; Dr. Fielding H. Garrison, assistant librarian; Hon. James Hay, chairman committee on military affairs, House of Representatives.

A letter received since the above was printed, from Hon. James Hay, chairman committee on military affairs, says that the Senate amendment to the Army Appropriation bill providing for the removal of the Surgeon-General's Library to the Library of Congress was defeated. This news is confirmed in a letter from Senator John W. Weeks, dated April 30, whereas Senator Lodge wrote April 29 that he had taken up the matter with the committee in charge, but without result. Therefore it would seem that the library's protest arrived in Washington at an opportune time.

ILLINOIS STATE CIVIL SERVICE COMMISSION.

NOTICE OF EXAMINATION.

Applications must be on file in Springfield before 5 p. m., May 13, 1914.

Examinations will be held Saturday, May 23, 1914, at each one of the State Charitable Institutions where applicants appear, for the following positions:

GRADUATE NURSE.—Class B, Grade I. Open to men and women between ages of 21 and 45 years. Salary $40 to $55 per month with full maintenance. In this grade are all positions in hospitals for the insane, the duties of which involve the care of patients under the supervision of the Chief Nurse and the medical staff, together with the direction of Attendants when necessary; requiring education equivalent to graduation from a nurses' training school in an Illinois State Hospital for the Insane. Scope and weights: training and experience, 3; technical knowledge of nursing, 7.

MALE SUPERVISING NURSE.—Class B, Grade II. (*Promotional only.*) Open to employes who have served six months in Class B, Grade I, prior to examination, are on leave of absence, or are eligible for reinstatement. Salary $50 to $70 per month with full maintenance. The duties, under the supervision of the Chief Nurse and medical staff, involve the general overseeing of the Nurse and Attendant force, caring for the patients in a portion of an institution; requiring at least six months' experience as a Graduate Nurse and some administrative ability. Scope and weights: special subject, including questions on administrative duties and practical nursing, 8; seniority, ½; efficiency, 1½.

Requests for information and application blanks should be addressed to W. R. Robinson, Chief Examiner, State Civil Service Commission, Springfield, Illinois.

NOTICES.

CONFERENCE ON THE STUDY OF EXCEPTIONAL CHILDREN IN OUR PUBLIC SCHOOLS.

Friday, May 1, 3 p. m., Assembly room (third floor), Psychopathic Hospital. "Methods of Studying the Exceptional Child," Dr. Yerkes and Dr. Puffer.

Friday, May 8, 3 p. m., Assembly room (third floor), Psychopathic Hospital. "A Study of Typical Cases," Dr. Puffer, Miss Hardwick, and Mr. Bridges.

BOSTON MEDICAL LIBRARY.

At the meeting of the Committee on Library and Finance of the Boston Medical Library April 27, the Directory for Nurses was placed in charge of the House Committee of the Library, the late Dr. C. P. Putnam having been a single sub-committee having the care of the directory.

Dr. Edward C. Streeter was appointed a member of the Committee on Library and Finance to fill the vacancy caused by the death of Dr. Putnam, and was assigned to the sub-committee on the Library.

SOCIETY NOTICES.

THE AMERICAN GYNECOLOGICAL SOCIETY.—The thirty-ninth annual meeting of the American Gynecological Society will be held in Boston Tuesday, Wednesday and Thursday, May 19, 20, 21, 1914. The scientific sessions of Tuesday and Thursday will be held at the Boston Medical Library and of Wednesday at the Country Club, Brookline. The headquarters of the Society will be at the Harvard Club, Boston.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—The sixty-fourth annual meeting will be held at the New American House, Hanover Street, Boston, on Tuesday, May 12, 1914. The business meeting will be at 5.30 p. m. and dinner will be served at 6.30. Tables seating eight will be used and members may arrange parties. Dinner tickets may be obtained from the secretary for $1.00 each. All members are urgently requested to pay their annual assessment of $5.00 at this meeting or forward it to the treasurer instead of making payments at The Massachusetts Medical Society meeting in June.

The Board of Censors will meet for the examination of candidates on Thursday, May 14, at 2 p. m., at Roxbury Masonic Temple, 171 Warren Street, Roxbury.

BRADFORD KENT, M.D., *Secretary.*

RESIGNATION.

Dr. Frederic M. Briggs has tendered his resignation as Professor of Surgery and Secretary of the Faculties of Tufts College Medical and Dental Schools, to take effect September 1, 1914.

RECENT DEATHS.

DR. HIRAM LUCE CHASE, who died on April 24 in Cambridge, Mass., was born at Boston in 1825. He received the degree of M.D. from the Harvard Medical School in 1846, and ever since that time had practised his profession in Cambridge. He was a member of the American Institute of Homeopathy and of the Massachusetts Homeopathic Medical Society. He is survived by one son, also a physician.

DR. WILLIAM J. O'REILLY, who died on April 24 in Roslindale, Mass., was born at Charlestown, Mass., in 1859. He studied medicine in New York and received the degree of M.D. in 1883 from Bellevue Hospital Medical School. He practised his profession for several years at Waltham, Mass., and then removed to Roslindale. He was a former member of The Massachusetts Medical Society.

DR. O. O. ROBERTS, who died on April 26, in Northampton, Mass., was born at Lyndon, Vt., in 1829. He received the degree of M.D. in 1853 from the Hahnemann College, Philadelphia. He settled at Northampton in 1857, and was the first president of the Western Massachusetts Homeopathic Medical Society.

DR. CHARLES EDWIN SANFORD, who died on April 26 at Bridgeport, Conn., was born in 1830. He received the degree of M.D. in 1853 from the Yale Medical School, and settled at Bridgeport in 1859.

DR. HARRY ATHERTON SMITH, who died on April 27, at West Roxbury, Mass., was born in Auburn, Me., on June 23, 1866. He graduated in 1886 from Colby College, and in 1890 received from the Bowdoin Medical School the degree of M.D. After serving as house physician at the Maine General Hospital, Portland, he practised his profession at Livermore, Me., for eight years, until he removed to West Roxbury in 1899. He was a former Fellow of The Massachusetts Medical Society.

Original Articles.

ON TERRITORIAL AUTONOMY IN CEREBRAL CIRCULATION AND ITS RÔLE IN THE GENESIS OF SYMPTOMS IN THE PSYCHONEUROSES.*

By J. W. Courtney, M.D., Boston.

In a paper on hysteria read before the American Neurological Association June 20th, 1884, Dr. Walton[1] makes the following statement; "Just what changes occur in the brain in hysteria, we do not know, and are not likely to decide for some time, but it will not be inappropriate, as bearing on the connection between hysteria and the ovaries, to present a few arguments here in favor of the vasomotor theory, by no means as underlying all hysteria or hysterical symptoms, but as best explaining that set, at least, of so-called hysterical cases in which hemianesthesia is the principal symptom.....

"It has been urged that the changes in cerebral activity, giving rise to these and all other hysterical symptoms, are dynamic, and not susceptible of explanation by so simple a physical phenomenon as contraction and relaxation of blood-vessels. To me, however, the explanation implicating the blood-vessels is by far the most satisfactory provided it meets all the requirements, and this it seems to do in at least the class of hysterical patients under consideration. ....;the sudden loss of function of the cortical cells of half the brain, as seen, for example, in hemianesthesia, may easily be imagined to supervene suddenly upon a more or less completed contraction of cortical blood vessels on that side from irritation of the sympathetic system in some part of the body. Loss of function would in this case persist as long as the contraction of vessels so continued, and at the same time the nerve cells would be ready to take up their duties instantly with the return of blood through cessation of the vascular spasm.....

"This theory by no means limits the cerebral disturbance to one side of the brain, nor on the other hand does it preclude a limitation of the vasomotor change to a small part of the cortex, as, for example, to that concerned in particular motions or sensations. At the same time it well explains the tendency of the symptoms to spread over an entire half of the brain and hence, of the body. To explain the predominance of sensory over motor symptoms, or the opposite, we have only to suppose the vascular spasm more complete over one than over another portion of the cortex."

In the discussion which followed the reading of the paper, the speakers, in the main, dissented from Dr. Walton's theory, but nobody brought forward the only insurmountable objection that could validly be raised to it, namely, that Dr. Walton's assumption of the existence of cerebral vasomotor nerves was entirely unsupported by any physiologic or anatomic researches up to that time made.

The history of the cerebral vasomotor nerves forms, to my mind, one of the most curious chapters in physiologic literature. As late as 1890. Sir Michael Foster,[2] in the third edition of his text book on physiology, says: "Moreover the flow of blood to, and consequent change in the bulk of the brain, as measured by the venous outflow, may be modified independently of changes in the general blood pressure. For instance, stimulation of the motor region of the cortex quickens the venous outflow, without producing any marked change in the general blood pressure; *this feature becomes very striking at the onset of epileptiform convulsions* when these make their appearance. It is difficult not to connect such a result of functional activity with some special vasomotor nervous arrangement comparable to that so obvious in the case of a secreting gland."

From 1890 to 1897 no noteworthy contribution to the literature of the nerves in question was made. In the latter year Hill and Bayliss,[3] after much elaborate and painstaking experimental work came forward with the following ultimata:—first, that no evidence was found by them of the existence of cerebral vasomotor nerves, either by means of stimulatoin of the vasomotor centre, or central end of the spinal cord after division of the cord in the upper dorsal region, or by stimulation of the stellate ganglia—in other words, by stimulation of the whole sympathetic supply to the carotid and vertebral arteries; second, that evidence is not forthcoming of the existence of any local vasomotor mechanism; and third, that the cerebral circulation in normal conditions passively follows the changes in the general arterial and venous pressures.

Curiously enough, in the self-same year, Obersteiner,[4] by means of the gold-and-sodium chloride stain, was able to demonstrate the presence of vasomotor nerves in even the finer cerebral vessels. Hill[5] had admitted the presence of undoubted muscular tissue in the vessels of the pia, but Obersteiner[6] went a step farther and, having pointed out the presence of a fully developed muscular media in all intracranial vessels, down to the finest subdivisions (Ubergangsgefässe) regarded this finding as sufficient evidence in and of itself of their innate power of independent contraction and dilatation. He laid great stress, however, on the ease with which the cerebral vasomotors became paretic and lost their power to respond at a time when those of other organs responded readily.

During the next year the published work of both Gulland[7] and Morison[8] abundantly confirmed Obersteiner's observation, and the existence of a special cerebral vasomotor apparatus

* Paper read before the Boston Society of Psychiatry and Neurology, Feb. 19, 1914.

seemed to be an established fact. There have been subsequent observations made in this same field although they are relatively few in number. In the main they substantiate the opinions of Obersteiner, Gulland and Morison. Four in particular are interesting by reason of the method employed. As you probably well know, it is now an almost universally accepted fact among physiologists that a positive reaction to adrenalin is a trustworthy proof of the existence and nature of the sympathetic nerves of an organ, and in the four instances just alluded to, the adrenalin test was made. Spina[9] found, after intravenous injection of adrenalin extract, that the cerebral vessels were markedly dilated; to such an extent, indeed, that, with an incised dura, a hyperemia sufficient in degree to cause a brain prolapse could ensue. By direct application of the same substance to the same cerebral vessels, Biedl and Reiner[10] found that these vessels could be brought into a state of contraction, but they also noted that when the pressure increase in the general circulation had become established, the brain anemia gave way before the general high blood-pressure.

Protopopoff[11] noted that either immediately or within a few seconds after the intravenous injection of adrenalin, a very marked arterial anemia followed and continued for from two to five minutes according to the dose employed. If the latter were large, the anemia was followed by a hyperemia of shorter duration. At times the effect produced was undulatory in character, that is to say, successive cycles of anemia and hyperemia to the number of three or four were observed. The venous circulation of the brain was either not affected at all or showed merely a slight stasis. It is Protopopoff's opinion that only the capillaries contract and that the calibre of the visible arteries is not changed. This contraction he looks upon as the result of the direct action of the adrenalin upon the vessel walls rather than of excitation of the bulbar vasomotor centre. To this same contraction rather than to increased cardiac energy he attributes the heightened blood-pressure. Adrenalin introduced into the stomach, he found to be absolutely inefficacious.

The last observation to be mentioned, that of Wiggers,[12] is the most noteworthy. Before making his experiment this author carefully considered all possible sources of technical inaccuracy, and ingeniously contrived to eliminate them. His experimental material was the decapitated head of a large dog. His conclusions are as follows:—

"1. By perfusing the isolated brain under constant temperature and pressure with a suitable solution and continuously recording the entire venous outflow, the effect of influences which alter the size of the brain vessels can be definitely ascertained.

"2. The application of adrenalin solution to such a preparation in such a way as not to introduce factors themselves conducive to outflow change, caused reactions which corresponded to those obtained from the vessels of other regions.

"3. These reactions, if induced through the stimulation of vasomotor nerve ends, as claimed by certain workers, supply physiological evidence of the existence of such nerves."

In spite of certain rather marked discrepancies in the results obtained by the observers quoted, it seems to the writer that the bulk of the evidence unquestionably establishes the existence in the brain of a "special vasomotor nervous arrangement comparable to that so obvious in the case of a secreting gland."

When we take into consideration the highly differentiated functional value of the various brain areas and the wide variations in degree within which certain of these areas, either singly or in groups, are from moment to moment called into activity, while others either adjacent or remote, are practically quiescent, it is impossible to believe that the cerebral circulation passively follows the changes in the general arterial and venous pressures. Not only in the secreting glands but elsewhere throughout the economy, Nature has provided for local activity and local rest—in other words, for local waste and repair —in the form of circulatory autonomy. And it is entirely incredible that having thus endowed the vegetative organs, for example, she should freakishly have turned her back upon the brain.

In 1899, in a paper[13] on traumatic cerebral edema, I exploited what I believed to be the rôle played by the cerebral vasomotors in the production of this pathologic condition. At that time I was quite unaware that Dr. Walton had advanced the theory that these same nerves were the medium through which hysteric symptoms came into being. I was equally ignorant of the existence of his theory when the present paper —the outcome of long and careful independent consideration of the subject under discussion— was begun. It gives me, therefore, the greatest pleasure to announce at this time that, so far as the views about to be set forth relate to the pathology of hysteria, they are, in essence, identical with those published by Dr. Walton in 1884.

Directly we establish the existence of the power of independent dilation and contraction on the part of the vessels of the brain, we may logically assume that that organ, in common with other parts of the economy provided with an identical autonomic circulatory apparatus, receives, under normal circumstances, a supply of blood nicely proportioned in quantity to the functional activity of the moment. And when we consider that this activity is a constantly changing one with regard to both area and intensity, I think we may carry our assumption farther and safely postulate the existence of a territorial autonomy in cerebral circulation.

Physiologically, we have presumptive evidence of it on every hand. For example, when the muscular system is practically in a condition of absolute rest and the mind is intensely absorbed

in study, it is unbelievable that the Rolandic area and those which govern certain of the special senses, notably hearing and smell, are each receiving at the same time an amount of blood equivalent to that circulating through the prefrontal region of the cortex. It is equally unbelievable that in the cortex of a person walking along with hands in pockets, deeply engaged in pondering some perplexing problem, an equal volume of blood is passing through the prefrontal lobes and those which preside over the inert upper extremities and the automatically acting lower respectively. If it were necessary, examples of this sort could be multiplied almost indefinitely.

Pathologically, we have two forms of presumptive evidence of the existence of cerebral territorial circulatory autonomy—direct and indirect. The first is clearly manifest when the cranium is opened and certain portions of the cortex observed in cases where the brain has been contused by a diffused traumatizing force. Here one not infrequently finds in the absence of all discoverable pressure from within or without, cortical areas that are absolutely pulseless side by side with others which are pulsating normally. This fact, striking as it is, is easily paralleled in significance by the experience of surgeons who are constantly discovering, even in exploratory operations upon non-traumatized brains, that anything beyond the most gentle manipulation of the cortex is followed by cessation of pulsation in the regions palpated.

Indirect evidence on the point in question is derived from observations in regions other than the brain whose vessels are supplied by the autonomic system. Here, for the sake of brevity, will be mentioned only the striking and common examples of morbid local autonomic function, namely, isolated congestion of the ears, spontaneous ecchymoses upon the surface of the extremities, spontaneous edema and the various forms of akroasphyxiation. The last-named term is to be taken in its broadest sense and is meant to include manifestations ranging in severity from the more or less permanently cold and mottled extremities and the so-called dead fingers of the neurotic to the gangrene of the victim of Raynoud's disease.

The evidence thus far adduced may fail to bring about a universal admission of the existence of an autonomic, particularly of a territorially autonomic cerebral circulatory system. But it seems to me only fair to maintain that the facts brought forward in the hope of inducing belief in its existence are, to say the least, quite as material as those which underlie many of the generally accepted beliefs of neurologic and psychiatric science. And when it comes to a concrete conception of the pathologic substratum of the clinical phenomena observed in those nervous states broadly termed neuroses and psychoneuroses, it seems to me infinitely more scientific and more in harmony with the terms of pathology to designate it as a cerebral vasomotor ataxia, than to evade the issue with purely psychologic abstractions. When one speaks, for example, of hysteria as a dissociation of the personality, a limitation of the field of consciousness or a conflict in the unconscious it is tantamount to a begging of the question—to an attempt at explaining a pathologic process by a single symptom chosen arbitrarily from the great symptomatic complex to which the process gives rise.

The direct and absolute relationship of vasomotor activity to the normal functioning of a part has never been more strikingly shown than in the experimental work of Cannon[14] upon the alimentary canal of animals. This observer found that not only were the secretory activities of the stomach affected by the stronger emotions but that the movements of the stomach and, indeed, of almost the entire alimentary tract as well, were wholly stopped during excitement. If we had no other facts upon which to base an analogy it seems to me that Cannon's findings, in and of themselves, warrant the assumption that the disordered brain function underlying hysteria, is directly traceable to changes in vascular tension.

The mode of onset, the distribution and the general behavior of hysterical symptoms all accord with such a view. In the emotionally induced crises we see very clear evidence of the varying degrees with which different brain areas respond to the change in vascularity. Beginning with the small facial muscles the motor excitement affects progressively more numerous muscles and larger muscles and finally ends in sardonic laughter and violent contortions. When the motor storm is over we discover the havoc wrought in the vasomotors of certain brain areas by the pathologic stimulation of the emotion. This is usually in the form of anesthesia distributed in disseminated islets or involving an entire half of the body; of mono- or hemi-plegia, a contracture of a limb or an abolition of function of one of the sense organs. Nothing could more clearly indicate a territorial vasomotor paresis than this.

The same paresis is manifest when one or more of the above phenomena appear, as is sometimes the case, without any preceding emotional storm, and it is here that the notion of territorial circulatory autonomy gets its strongest support.

Phenomena in the intellectual sphere, such as changes in the personality, are explainable, I believe, on precisely the same ground. In recorded cases where hysterics have, through successive retrograde changes, dropped from the intellectual level of adult life to that of infancy, the extent of degradation noted in the successive changes is probably directly proportionate to variations in local vascular tension. If we seek for analogous phenomena elsewhere in brain pathology, we find them in the retrograde mental changes accompanying the cerebral anemia of atheroma and syphilis. In the two latter dis-

eases, to be sure, the anemia which produces intellectual retrogradation leads also to cellular decay. And it may properly be objected that no such cellular decay is found in hysteria. In the great majority of cases cellular decay is of course absent, because the extreme variations in the tension of the brain arteries in hysteria are almost never of sufficient duration to permit of such a pathologic process. That this is not universally the case, however, I hope to show in a subsequent paper where I shall report the complete microscopic findings in the brain of a case of hysteria of unquestionable genuineness.

Cellular degeneration does not take place in those brain areas whose perturbation of function is manifest by the so-called permanent stigmata, which, incidentally, are always sensory or sensorial in character; or by such apparently more or less persistent phenomena as hemiplegia, monoplegia and contracture, because these phenomena are in reality intermittent and do not persist during sleep.

It might pertinently be asked upon what grounds the rather wide variations in cerebral vascular tension, which are assumed to regulate the variations in the severity of the hysterical phenomena, are based. In reality, it is based in part upon the experimental work, particularly that of Protopopoff, quoted above, and in part upon analogy, since precisely the same variations are manifest in the akroasphyxiations where widely varying degrees of intensity of vascular spasm are betrayed, as has been said, by coldness and mottling of the skin, by the so-called dead fingers, by akrocyanosis and by actual gangrene. Analogous variations may also be found in the case of the stomach and bladder during states of emotional excitement.

Edema of brain tissue consequent upon vasomotor ataxia probably rarely ensues on account of the transitory character of the ataxia and the really moderate degree to which the ataxia is probably in most cases limited. In the rare cases in which it might occur it would naturally be limited in distribution and readily carried off through the sinuses.

The physiologic and pathologic principles above set forth seem to the writer to apply with equal force to the interpretation of the clinical manifestations of epilepsy and migraine.

In the former disease the territorial defects in arterial functioning are clearly manifest in spasms confined to limited groups of muscles and to sudden changes in the personality. The more diffused effects of vasomotor ataxia are probably responsible for the grand mal attacks. The difference between epilepsy and hysteria, pathologically speaking, lies in the degree of activity rather than in the nature of the provocative agent.

The same statement is also undoubtedly applicable to the relationship between the above two diseases and migraine. In the last named the vascular spasm is peculiarly territorial, as ophthalmoscopic examination made during the attack would seem to indicate. Parisotti,[15] for example, had the opportunity of making such an examination and found that, with the loss of the lower field of vision, there was marked narrowing of the arteries of the upper half of the retina, with normal calibre of those of the lower half. Subsequent to the attack the spasm had disappeared.

Quaglino[16] found narrowing of the calibre of the retinal arteries during attacks of scintillating scotoma lasting from five to fifteen minutes, during which there was transitory loss of vision, with bright elliptic figures bounded above by a radiating halo.

Seagrist[17] observed marked narrowing of the retinal arteries on the side of the hemicrania during the attack and was able to corroborate the observations during a second attack.

To those who welcome the abstruse, the nebulous and esoteric in theories concerning the pathology of the psychoneuroses, so simple a conception as that of a territorial vasomotor ataxia will make no appeal. There are, however, certain strong points in its favor which cannot be gainsaid. These have already been hinted at or specifically mentioned, but will, I think, bear recapitulation here: first, it is universally intelligible; second, it does not attempt to explain a pathologic process by a single clinical symptom, to which the process gives rise; and third, it harmonizes with the general concepts of pathology.

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DEATHS FROM SNAKE-BITE IN INDIA.—In the year 1908, 19,738 persons died of snake-bite in India; in 1909, 21,364; in 1910, 22,478. The number of persons killed by tigers in 1908 was 909; in 1909, 896; and in 1910, 853.

TEN TESTS BY WHICH THE PHYSICIAN MAY DETERMINE WHEN A PATIENT IS CURED OF GONORRHEA. A STUDY OF 1260 TESTS BY CULTURE AND SLIDE OF THE EXPRESSED PROSTATIC AND VESICULAR SECRETIONS.*

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THAT gonorrhea is a most serious and dangerous disease, is admitted by every physician who has observed its disastrous effects. It is responsible for one-fourth of all the blindness in the world, for thousands of deaths from secondary kidney disease following stricture, for many fatal cases of gonorrheal salpingitis and secondary peritonitis, and for metastatic gonorrhea (the so-called gonorrheal rheumatism) which results in temporary or permanent loss of function in one or many joints.

It is stated by specialists in that line that gonorrhea is the cause of 60-80% of all gynecological operations. We should add to our list of disasters sterility in both men and women.

From this brief review of the subject it is clear that all preventive measures which tend to lessen the spread of this disease should receive the thoughtful attention of every physician.

This paper will not discuss the ordinary clinical symptoms and treatment of this ailment, for it is wholly concerned in answering these very important questions, when is gonorrhea cured? How may we assure a patient who has had it that he may marry without danger of infecting his wife? It would seem at first sight that the answer was easy, that when the discharge stopped, and the urine was clear, and there was no return of the symptoms, that the case was well. This is usually the patients' view and because of this many serious and unfortunate results are observed. In spite of a clear urine and no discharge for months, gonorrhea may exist in an active and dangerous form. The explanation of this is found in the peculiar and complex structure of the urogenital organs. The urethra, in which the infection first occurs, is divided into the anterior and posterior portions by the compressor urethrae muscle. In the anterior portion there are along the urethra, the lacuna magna, and the follicles of Littrè and Morgagni, in all of which the gonococci may be concealed and give no symptoms.

In the bulbous urethra upon the floor are the two openings of Cowper's glands, the ducts of which are nearly two inches in length and end in small glands which are situated between the layers of the triangular ligament. Along this duct the infection may extend, giving rise to no symptoms until some cause starts it into activity, when it may infect the urethra and cause a profuse discharge. When we pass the compressor urethrae muscle we enter a portion of the urethra, which has many and important structures leading from it.

In the median line is the veru montanum, with the colliculus at its apex, on the walls of which the ejaculatory ducts are to be found. Along the floor are the prostatic sinuses, from which many glands lead into the prostate.

Connected by the ejaculatory ducts are the seminal vesicles, composed of tubules and blind cul-de-sacs.

It is possible for the gonococcus to enter these ducts and organs and remain latent many months or years. If the disease did not extend beyond the compressor urethrae muscle the danger of latency would not be as great, for probably 90% of relapsing cases are due to the prostate and vesicles, but the unfortunate fact is that from 60% to 80% of cases do progress beyond this muscle and become posterior, either with or without subjective symptoms. Hence it is obvious that before deciding upon a cure these organs should be carefully examined to determine that no organisms are present.

Assuming then, that a patient presents himself for examination as to whether he is cured and in proper condition to be married or to resume marital relation if already married, what steps should we take to assure him that the disease is no longer present?

Two classes of cases are seen: first, those in which the disease has been a first infection and has been acute and uncomplicated, and second, the chronic and protracted cases which have resisted treatment, are usually not primary infections and have resulted in some organic change in the anatomic structures.

In the first class there is less danger of latency than in the seconad.

1. *Discharge.* Regardless of which class the case belongs to, we should begin our examination by an inspection of the patient's urethra to find out whether any discharge is visible at the meatus and if not, the urethra should be gently stripped.

If present it should be looked at with suspicion and carefully examined for gonococci. If it contains only mucus, epithelium and an occasional pus cell it may be harmless, but a culture of it should be made to prevent any possibility of error. If no discharge is present inquiry should be made as to how long a time has elapsed since urination, and the patient should be told to carefully examine the meatus in the morning before urination and if discharge is present it should be placed on a slide for examination.

2. *Urine.* If no discharge is found we should now examine the urine as to its clearness and freedom from shreds. A turbid urine which

* Read before the Somerville Medical Society, March 4, 1914.

does not clear upon the addition of acetic acid, shows a chronic inflammation, and the examination need proceed no further for it is obvious that the disease is still present. If clear and shreds are present, their size and action in the urine should be noted. If they are large and sink quickly they contain a large amount of pus and indicate an inflammatory area somewhere along the urinary tract which must be located and treated. If small, or light and flocculent, they are chiefly mucus and epithelium and are not usually of diagnostic value, merely indicating a mild urethral catarrh.

Not a great deal of information is gained from the microscopical examination of these large shreds. Some years ago the writer investigated them by preparing over a hundred slides and several hundred fields were gone over with the result that gonococci were found in only two large shreds.

Therefore other means will tell us more quickly and accurately whether the disease is present.

3. *Instrumental Examination of the Urethra.* By the bougie-a-boule we should examine the urethra for stricture and for tender areas. If the meatus is small it should be divided to permit the passage of instruments.

If a 28 or 30 bougie-a-boule passes freely to the bulb and shows no stricture or tender spot, and if a 28 sound passes to the bladder easily and without causing bleeding we may feel fairly well assured that no stricture exists in the urethra which might cause a relapsing discharge.

4. *Urethroscopic Examination.* By this we can ascertain the condition of the urethral mucous membrane and can occasionally see the minute openings of inflamed follicles.

If localized congestions or erosions are present they should be placed under treatment by local application of silver nitrate, which will provoke a discharge which should be examined.

5. *Examination of the Prostate and Vesicles.*—With the bladder partially filled with urine or boracic acid solution, the prostate and vesicles should be examined and their size, consisteney and sensitiveness should be noted. If boggy, enlarged or tender, it indicates the need of treatment, at any rate, and the possibility of latent disease in these organs.

Whatever the condition found may be, gentle massage should be done and the vesicles stripped. The discharge appearing at the meatus should be saved on a slide, or Petri glass, and examined later.

The urine or solution should now be passed and if many "snowflake" masses are present they should be examined microscopically. They almost surely mean vesiculitis, and a patient having this cannot be called cured.

The very important and vital examinations of this expressed secretion by culture and slide will be later referred to at length.

6. *Test by Alcohol.* If the patient has successfully passed the foregoing tests he should now be permitted to take malt liquors (the so-called "beer test") or spirits.

The results should be carefully noted and also the character of any discharge produced by them.

7. *Coitus.* This test cannot properly be included among those which should be used, because no physician would permit a patient to risk infecting anyone else. Nevertheless, there are patients who have no sense of moral responsibility and from their errors certain conclusions can be formed, provided a protective covering is used. In case the discharge returns we know it was a relapse and not a new infection.

8. *Discharge Induced by Irritating Antiseptics.* This so-called provocative method consists in irrigating the urethra with some irritating chemical substance producing a urethritis, and the resulting discharge may show gonococci in the pus cells which have come from the deeper layers of the urethra. Nitrate of silver is the best antiseptic for this purpose and should be used as an anterior injection in the strength of 1-4000 and also as a deep urethral irrigation in the strength of 1% in a Keyes-Ultzmann syringe.

I am in the habit of passing a full sized sound before using the injections to dilate the urethra and to express from the follicles any retained contents.

9. *Bacteriological Examination of the Expressed Vesicular and Prostatic Secretion by Culture and Slide.* It is very interesting to note that in 1878, one year prior to the discovery of the specific organism of gonorrhea, the attention of the medical profession was called to the possibilities of its latency by Emil Noeggerath of New York. At that time his conclusions were ridiculed but today it is generally admitted that this disease may remain latent for months or years. The discovery of the gonococcus by Neisser in 1879 and its growth in a culture medium by Bumm in 1887 were the beginnings of better days, for it is no longer necessary to grope blindly in the darkness of ignorance for the causative factor of the disease, but its presence or absence may be seen in the clear daylight of scientific accuracy. The work so ably started by these pioneers has been the means of helping us to recognize many obscure conditions due to this organism. The difficulty of determining whether or not a patient is the host of the gonococcus has not been lessened since the publication of my first paper in 1911 (Chronic Relapsing Gonorrhea and the Methods Used to Determine Its Cure), and the larger series of cases which are now reported have emphasized the facts then stated.

These cases, which have been studied by my colleague, Dr. A. C. Pearce, and myself, have made us realize more than ever the responsibility placed upon the physician who is called upon

to determine whether or not a man may safely marry.

In order to answer this question intelligently it is absolutely necessary that the patient should be under observation a sufficient length of time to allow various tests to be made, which require at least three weeks. We have been repeatedly called upon to determine whether or not a man is cured of his ailment and been told by him that he has made all arrangements for marriage in a week or ten days. He would certainly be placed in a very unpleasant position in case our examination showed the presence of gonococci. The insidious character of latent gonorrhea has repeatedly manifested itself in our series of cases. Time and again a patient has been examined who has a clear urine, no visible discharge at any time, with few if any shreds, and upon stripping the seminal vesicles we have found them loaded with pus. Whether or not we find the gonococcus in the expressed secretion we consider this man a menace to the community and he should not be allowed to marry until we have improved his condition. The presence or absence of chronic seminal vesiculitis cannot always be made by rectal palpation alone. It can only be made in some cases by a physical and microscopical examination of the expressed vesicular secretion, because the vesicles are not always enlarged to touch.

Manifestly, then, such an examination is indispensable in ascertaining the presence of a latent form of gonorrhea. In considering the prostate as a harboring place for these organisms we believe that too much importance has been given to it. We know that the disease does infect the glands leading from the sinuses, the colliculus, and may enter the tissues of the gland itself, but these are reached by treatment through the urethra, while the seminal vesicles, with their honey-comb structure so ideal as culture media for organisms, can only be indirectly treated by stripping and in intractable cases by incision or excision of these organs. This means a severe and mutilating surgical operation, which may be dangerous to life. While this is rarely necessary, there are cases which will yield to no other means. The fact that so few patients who have a low grade chronic prostatitis are sterile would lead us to believe that its secretory action is not markedly disturbed, but it may still excite the motility of the spermatozoa and may also stimulate the testes in the formation of them. In the examination of a patient to determine the presence or absence of gonorrhea our methods are substantially the same as reported in our first paper.

The patient is instructed to report with a full bladder. Any secretion appearing at the meatus is obtained on a slide and reserved for future examination. The anterior urethra is cleansed with normal salt solution, which will not affect the growth of the gonococcus, and the glans penis is cleansed with alcohol, which causes a temporary burning sensation if it enters the meatus or comes in contact with the scrotum. The patient then assumes a crouching position with the knees slightly bent and the back parallel with the floor. The vesicles are then vigorously massaged and the strippings allowed to drop into a tube containing the culture medium. A series of slides is made and then the patient passes his urine into a clear glass. This is later centrifuged and examined for pus and cocci.

The culture tube is incubated for 24 to 48 hours. The slide gently fixed with heat and placed in a solution of equal parts of ether and alcohol, to be stained later by the Gram method. The examination of the unstained slide is done immediately and the addition of a weak solution of acetic acid aids in detecting the pus corpuscles.

The culture media described in my previous paper have been found fairly satisfactory and we have chiefly used the nutrient blood agar in the proportion of one part blood to two parts nutrient agar. The latter is prepared by extracting one pound lean beef by immersion in 500 c.c. cold water for twenty-four hours, and then bringing it to a boil and skimming the surface. Then we add 40 grams of agar, 10 grams sodium chloride and 1 litre of water. Titrate 8-10 of one per cent. to phenolpthalein. The growth of gonococcus outside of the body in even the most carefully prepared media is uncertain because of its low vitality. One or two degrees of temperature above or below 38° Centigrade is sufficient to make the test valueless. It is therefore necessary to have the patient examined near to the thermostat in which the culture tube is to be placed because it cannot be transported from a distance in the varying temperatures which occur in this climate.

Another difficulty is the frequent and rapid growth of other organisms than the gonococci, for it is rare to get a pure uncontaminated culture.

The series here presented consists of 1260 examinations by culture and slide.

To properly understand the importance of the results obtained it is essential to state that nearly all these cases had been treated thoroughly by all modern means before they were subjected to these tests. In acute cases the vesicles were massaged after apparent recovery and the urethra examined, and in the chronic ones where the disease when first seen had existed from six months to eight years they had been treated for months by urethral dilatation and local urethroscopic applications, as well as by thorough and repeated prostatic massage and vesicular stripping, with the usual antiseptic irrigations and instillations. Further, the majority of these cases were private patients of the writer, others were sent by their physician for these tests, and a very small proportion were from the clinic, where they had been subjected to thorough and careful treatment.

Let us see what the examination of these

well watched, carefully treated and apparently cured patients showed. Gonococci were found as follows: By slide alone, 63, or 5%; by culture and slide, 44 positive, or 3½%; by culture alone, 26 positive, or 2%. In other words, from two to five men in every hundred who were clinically well harbored active and dangerous gonococci. It is sad to think of what the effect of marriage upon innocent wives and future children would have been. No patient who has had gonorrhea even in the distant past should neglect the precaution of these careful examinations to protect his health and that of those who will be near and dear to him in future. None of these cases had less than three examinations and we should insist on that number of cultural examinations at least, and more if the slide contains much pus. Some of our positive results were obtained on the first examination, while in others they did not appear till the second or third one.

It is needless to say that every one showing positive results was again subjected to treatment which was continued until we obtained three negative results, and up to the present not one of these men who have been married have had any return of their discharge nor have their wives been infected.

Many interesting results have been obtained from the bacteriological study of these cases as to the other pathogenic organisms which follow the gonococcus and serve to keep up a urethral discharge in some cases, but the limits of this paper do not permit a description of them. With new culture media the more accurate will be our results and the greater our assurance that physicians may do a beneficent work in the community by educating their patients to have these tests made.

10. *The Complement-Fixation Test.* This new and apparently valuable addition to our methods of determining the presence of gonococci or their toxins was first brought into notice by Schwarz and McNeil in an article published in the *Journal of the Medical Sciences* for May, 1911. Prior to that work along this line had been done by Mueller and Oppenheim, but it was not sufficiently conclusive to attract the attention of the scientific world.

This is similar to the Wassermann test for syphilis and follows essentially the same technic. It has been found necessary to use a polyvalent antigen, that is, one made from several strains (usually twelve) of gonococci. By this we determine the presence in the blood of an antibody produced by the gonorrheal organisms in the blood current or in the tissues of some organ, like the prostate, vesicles, or the joints. In an acute case it is not found before four weeks, and apparently remains long after the disease has clinically disappeared. It has been found after all microscopical and cultural tests have proved negative. These facts are most startling and point to the possibility that gonorrhea is not so local a disease as we have supposed it to be.

Not enough evidence has yet been produced for us to say that a positive result shows the presence of living gonococci somewhere in the tissues of the body, nor have we any way of knowing how long the antibodies may persist after cure. This is a most important fact to find out as otherwise we cannot wisely advise those patients whose test has proved positive. The test is exceedingly delicate and can only be done in a well equipped laboratory, and even there strange variations in the results are obtained. A clinically clear case of gonorrhea may show negative results, while one which is well by other and better tests may show positive results. The time has not yet arrived when we can depend upon this test alone and we must therefore place our faith in the tests which are of proven value and which will assure safety to our patients.

These tests which have been described are those which the physician should recommend to his patient, and by so doing he may lessen the peril of latent gonorrhea. He will do more than that for he will awaken in the public mind a realization of the fact that an apparently cured patient is not surely well, but that the consequences of his folly and misfortune may follow him all his life unless he receives competent and skillful treatment from his physician until he is cured, clinically and bacteriologically.

With the treatment of gonorrhea thus placed upon a plane as high as other diseases of far less importance we will hear less silly talk of the physician prolonging a case for financial reasons, we shall see fewer and fewer patients applying to druggists for nostrums promising a quick cure, and we will soon find that men having gonorrhea will aid their physician in their conscientious efforts to rid them of this dangerous malady.

SOME HYGIENIC TESTS APPLIED TO ORTHOPEDIC CONDITIONS.

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IT IS rather interesting in view of the great dependence placed upon personal hygienic measures in treatment of so many diseases, that so few precise hygienic methods have come into general use, ones that can be employed in recording conditions and changes in normal healthy functions from time to time with exact quantitative degrees of accuracy.

If a mechanic attempts to regulate a complicated piece of machinery, he must know all normal actions of the machine, and the degrees that these actions are influenced by different defects which happen to exist in each instance; and if he does not possess means of measuring

such normal conditions, nor the changes in them in response to his manipulations, probabilities then are strongly in favor of bungling readjustments. And the question has been asked properly why the same probabilities for poor results do not exist when varying degrees of normal human functions are inadequately recognized, and when therapeutic procedures are crudely estimated, or are wholly unmeasured in the treatment of human maladjustments.

The writers have attempted to approach the problem of more accurate hygienic regulations for joint troubles in the following way: The individual heart has a certain functional capacity that depends upon its size, the strength of its muscular walls, the integrity of its valves, and upon other considerations. And by measuring the degrees and variations of blood pressure some quantitative idea can be obtained of the organ's efficiency as it is functionating normally under the special conditions which exist within it. Blood pressures accordingly may be used as rough indicators of normal cardiac functions.

In the lungs the total air capacity may be taken similarly as an approximate gauge of normal pulmonary function regardless of pleural adhesions, diseased areas in the lungs, and so on.

Volumes and specific gravities of urines suggest quantitative amounts of normal work that kidneys are doing at the times the quantities and specific gravities are measured, irrespective of whether casts, albumin, or other evidences of renal disease exist.

Varying degrees of muscular strength are measures of the varying normal functional activity of muscular tissue; and amounts of food, eaten as dictated by the natural appetite, can be taken as very rough quantitative indicators of normal digestive functions if twenty-four-hour quantities of food are weighed before being consumed.

The percentage of haemoglobin in the blood furnishes an idea of the efficiency of the blood with respect to its normal oxygen carrying functions; and also it is possible to judge whether a nervous system is very vigorous or very weak by the hours of sleep taken, when allowances are made for unusual amounts of exercise, worry, *et cetera*.

An individual's weight is a measure of the fluctuating balances which have existed in the past between activities of different organs; while weight fluctuations, from time to time, measure changes continually taking place in the complex physiologic balances among the related organs of every individual.

If all normal functions of all important organs could be measured simply and accurately by clinical methods, we should, have a precise way of stating personal idiosyncrasies and peculiarities that now are designated under vague terms of plethoric tendencies gouty diatheses, nervous temperaments, debilitated and auto-intoxicated states, and others. We would then have definite formulae showing ratios between normal activities of different organs in each individual, as well as absolute degrees of physiologic activity of each organ.

But if one examines a physician's report one usually finds particular emphasis laid upon existing abnormalities and defects without any stated estimation of their probable influence upon healthy relations and functions; although there may be perhaps some vague observations that the individual's general condition seems to be "fairly good" or "rather poor." A lung may be tubercular, however, or a heart may have leaky valves, or a kidney show evidences of nephritis, or a digestive tract exhibit various peculiarities, and the person as a whole may still be active and able to perform his ordinary daily work for a considerable period of time. It should be recognized that these abnormalities are of moment only as they influence present or future normal physiological functions; and the writers wish to emphasize this fact, yet at the same time it is not intended to minimize the other side of the situation, namely, the great importance of knowledge of pathological anatomical peculiarities.

Medical literature of the past shows scanty hygienic data applied to orthopedic cases. Practically none of the older records can be considered complete or adequate in showing quantitative variations which occur from time to time. An attempt has been made therefore in this paper to tabulate in more available form some of the more easily measured normal functions and conditions, arranging them in a way that they can be understood at a glance, and showing variable proportions among different combinations, as well as absolute degrees each measurement exhibits. The relation of each observed condition to the average figures for the same condition among collected large series also is roughly indicated.

Data has been obtained from various sources. From tables of physical measurements made in gymnasia it was found that five feet seven inches and one hundred pounds can be taken as fairly representative figures, respectively, for average heights and weights. Eight hours is commonly considered a fair average for the number of hours of sleep required. Text books have yielded other approximate normal averages as follows:

Average vital lung capacity for an adult, 3700 cc., W. H. Howell, Text-book of Physiology. Average brachial blood pressure in adults (systolic), 110 mm. of mercury, Joseph Erlanger, quoted by W. H. Howell, text-book of Physiology. Average specific gravity of urine, 1.017-1.020. Olaf Hammarsten, text-book of Physiological Chemistry. Average volume of urine in patients treated in United States—1200 cc. for males and 1000 cc. females—C. E. Simon, Manual of Clinical Diagnosis.

Average amount of animal food—10 oz. Av-

erage amount of water—50-60 oz. Average amount of vegetable food—30-40 oz.—W. Gilman Thompson, Practical Dietetics. Other average amounts have been assumed less accurately for exercise, muscular strength, nervous reflexes, *et cetera*.

All these have been set down arbitrarily in a table at points marked off upon a straight line. Variations from these averages have been indicated in a convenient way upon perpendicular lines drawn through the straight line of averages, one for each average figure. Each perpendicular has been divided then into a scale to show degrees of variation possible for each separate condition.

Having selected this method of recording results, patients have been weighed, measured, tested with spirometers, blood pressure apparatus, dynamometers, etc.; and from results obtained a curve has been plotted for each individual. Using the table as the pattern for all records, sheets of thin paper have been placed over the table and straight lines drawn upon the blank sheets to coincide exactly with the straight line of averages of the table. Then various numbers obtained from each patient are marked off upon the individual sheets by looking through them to the right places upon the proper perpendiculars of the table. Points thus located then have been joined together into a continuous irregular line as is indicated in the diagrams below.

These irregular curves show easily the variable combinations, the deviations of each variable from the average, and the changes that occur from time to time.

There are many limitations to this graphic method, but before these are discussed a few cases will be cited to illustrate the advantages.

The first chart is that of a woman of thirty years. She was delicate as a girl, and appears now thin, flat-chested, and with poor muscular development. She is engaged at an indoor occupation, sits at her task of proof-reading, and gets outdoor exercise mainly from walking to and from her work.

Several physical examinations in the past have revealed no serious pathological lesions of her organs, and she has been cared for by a number of competent physicians. Fearing that she might become helplessly crippled she sought further advice, and came for treatment before she was seriously incapacitated.

She represents an under-developed woman who has been pushing herself to the limit of her vitality constantly in her daily pursuits. Her main complaints now are chronic dyspepsia, rheumatism, and muscular weakness. A routine physical examination shows no marked abnormality, apart from the poor general development, except obvious atrophy of the small muscles of the hands together with periarticular swellings of finger joints, and gastric symptoms of discomfort, sourness and belching after meals. There has been no history nor evidence of recent infections. Teeth, throat, tonsils, ears, nose, and genito urinary tract are apparently normal. No examination of gastric contents made at the time the hygienic data was tabulated.

The series of hygienic tests and measurements show a curve given in the first chart. This line runs generally below the average and sinks especially low at the points of lung capacity and amounts of fluids taken daily. There is a corresponding small volume of urine of rather high specific gravity. The patient was interested in seeing the graphic record, and could appreciate more readily from it the necessity for increasing if possible her lung capacity, also the desirability of getting more fresh air, and of taking more water. She has been given a few breathing exercises, and she rests an hour in bed in a room with open windows, after work, just before the heavy evening meal. A few tonic medicines and milk of magnesia have helped to relieve gastric symptoms, and by these various therapeutic measures the joint pains have diminished, her appetite improved and her strength has increased. It is not to be expected that a complete cure of such a case can be accomplished quickly after the condition has slowly come on in such a life-long delicate constitution, but the graphic method makes it possible to show to patient and physician clearly in a general way what needs to be done and what is being accomplished. In the past, in this particular instance, lack of such a method has been responsible apparently for the overlooking of the quantitative physiological defects which have been producing the anatomical abnormalities in the joints.

The second chart is of a healthy woman who is a sister of the first patient. The curve is different particularly because of the higher levels for body weight and amounts of fluids taken; but it shows a lung capacity of rather low degree like the patient.

The third record is one of a patient suffering with chronic gonorrheal arthritis. A general physical examination showed nothing very remarkable except the urethral infection. In the past the patient derived much temporary benefit from a course of baths at Hot Springs, Arkansas. After returning home, however, he was unable to take care of himself and the joint symptoms came back again. Then a trial of gonorrheal vaccines was made.

Vaccines, which were continued for a long period, produced slight relief at first, but later they wore the patient out so that he was worse than when he began this treatment. He also tried various rheumatic remedies.

When first seen by the writers he presented the condition so often seen in chronic patients, namely, the effects of too much and too varied therapeutic measures. After seven or eight months' rest from all stimulating or depleting procedures, and with observance of a few hygienic regulations, joint swellings and pains have

subsided greatly, muscular strength has partially returned, seven or eight pounds have been gained in weight and a secondary anemia has disappeared.

The curve which is shown was taken at this later period, and it does not demonstrate such striking deviations as that of the first patient. This single record, by itself, is of value mainly in revealing the absence of striking abnormalities. But if a record had been taken eight months ago, it would differ sufficiently from the present one to point out tendencies of the change taking place in favorable directions. Here again the value of greater precision and greater clearness of graphic representation of clinical data is obvious.

The fourth record is one of a healthy man who does little muscular work, and who leads an ordinary sedentary life. The curve in this case runs more frequently above the base line, and its general level is higher. The fifth chart is that of his wife, who has well-defined rational ideas about personal hygiene, and who is frequently engaged in showing others how to take care of themselves. In spite of all precautions, she slowly succumbed to a very obscure metabolic type of joint disease. Physical examinations have revealed nothing definitely abnormal, and now it is considered that she represents a type of disturbance analogous to gout. There may be in her case a backing up in circulation of some unrecognized substance, perhaps creatinin in too large amounts, and this normal product of metabolism may be producing pathological changes in the joints because of excessive amounts in the blood, similarly as excessive amounts of circulating urates produce pathological anatomical changes in gouty patients.

The sixth chart shows another infectious arthritic case originally of gonorrheal origin. Specific blood tests now are negative in reaction, and apparently the patient simply is in a run-down state. He has lost greatly in weight, and arthritic involvements are extending to new parts.

He has a history of having lived very well, has eaten heartily, worked hard, and has used some alcoholic stimulants. He exhausted himself finally and then tried unsuccessfully to restore his depleted vitality with bath and tonic treatments. At the time the hygienic data were taken he could barely walk with crutches, and ankle and knee joints were swollen and sore.

The curve is valuable in showing an individual generally below the average and without any marked abnormalities. The line rises above the base line only at two related points. He has been drinking water freely so that the amount of daily fluids taken and the volume of urine are above the line of averages. The urine represents the clear pale type of low specific gravity in latent chronic interstitial nephritis.

Such a chart helps to explain why there is so little chance of any single remedy, new or old, being found that will fit all different needs of the situation. It is difficult to conceive of any single drug or therapeutic measure being discovered, that will produce readjustments in all deviating factors correctly and in exactly right degrees in each to restore the most healthy complex proportions among them all. The only imaginable way that success can be attained in such a generally depleted condition is by means of a number of therapeutic procedures, each prescribed in individual ways with definite observations upon their separate effects. A graphic chart permits these combinations and slight variations to be estimated in the best manner.

DISCUSSION OF SOME OF THE ADVANTAGES AND LIMITATIONS OF THE METHOD.

The six illustrations that have been given hint at some advantages of the method, *e.g.* that patients' interests are aroused and sustained better; that greater precision and more completeness in estimation of patients' conditions become possible, and that therefore greater success in treatment results.

Many persons will see the defects of the scheme and some possibly will condemn the whole of it because there are many faults. For the latter an explanation is necessary,—that defects, although great, are less than those which are associated with total absence of hygienic data, as quite commonly is the case now with orthopedic patients. The method has not the accuracy of comprehensive physiologic experiments conducted in institutions, for example, like the Carnegie Nutrition Laboratory in Boston; and it is intended to be intermediate only between such careful scientific labors and the neglect, due to lack of time, shown frequently now among busy practitioners.

Criticisms can be advanced that the list of measurements is very incomplete, and that it does not include many important physiological functions. This is true, and if the number of individual tests was extended the curves would possess much more significance. As previously suggested, it would be advantageous to have all normal functions represented; but the element of ease has to be reckoned with, and the writers have selected only a few representative tests, that take but a few minutes of a physician's time. It may seem advisable perhaps in the future to add others, such as blood cell counts, ages, etc.; yet as now presented the records harmonize well in the degrees of reliability, which individual tests have shown and the significance which they possess in combination.

An objection may be raised that amounts of food vary greatly from day to day with varying appetites. However, experimentally it has been found that, rough as these measurements are, they are more precise than statements of patients. One individual may claim to have an unusually good appetite and to eat a large amount, and upon weighing the food it has been discovered occasionally that the reverse condi-

tion of affairs exists. Again another person says the appetite is poor and yet not infrequently the consumption of food actually is found to be excessive. These results of food weighings should be interpreted only to point out gross tendencies, and further weighings should be made to determine the lesser degrees and changes.

It is to be noted that work of weighing the food is relegated to patients themselves. Each is provided with a pair of scales with directions for weighing and eating each kind of food separately, and practically it has been found that the task arouses patients' interests, while simultaneously relieving the physician.

Regarding the accuracy of averages, it should be explained that only great deviations are to be considered significant in interpretation of results, so that these average figures do not have to be accurate to be useful. They depend upon so many elements that they can be only very roughly approximate; for example, body weights depend upon age, sex, occupation, etc., and vary within wide limits.

These figures, nevertheless, serve as a convenient *fixed base line* for comparisons. The two tests for muscular strength, *e.g.* the strengths of the forearm muscles and of pectoral muscles, are very incomplete, yet are better than descriptions of "poor," "ordinary," and "good," as these adjectives are used often in reference to muscular development. Moreover, patients find it interesting to watch the changes from time to time in degrees of muscular weaknesses of which they complain.

Averages do not have much significance for these particular tests unless many corrections are applied, and they are of use mainly as fixed points upon the base line of the table. This fact is made more clear by a statement of D. A. Sargent, director of the Hemenway Gymnasium at Harvard University, who has very kindly informed the writers that he has found that the average strength of forearm for the male is 55 kilos and for the female 25 kilos, while the average strength of chest for the male is 65 kilos and for the female 30 kilos.

No records are given in the article with repeated observations upon the same patient over extended periods. Single charts, however, differ greatly from each other and help to show the peculiarities which each patient exhibits. This fact justifies an early paper explaining the method.

It does not seem appropriate to discuss further the significance of hygienic measures in their relation to orthopedics, because everyone understands that personal hygienic regulations mean vascular regulations, and that the latter are matters of extremely great importance in restoration of health of all tissues including bones and joints.

Orthopedics, as it is understood at present, deals at times with surgery, mechanical supports, corrective apparatus and internal medical measures in treatment of joint diseases, deformities and various anatomical weaknesses.

In progress it is recognized by every one that orthopedists must continually study their problems carefully in order not to lay too much or too little emphasis upon any one of the related, important phases of their specialty. Care has to be taken not to stretch surgical methods to limits beyond which they are more harmful than useful, nor to use them too exclusively. There has to be avoidance of the error of ascribing all benefits observed to them, or to mechanical supports when the latter are matters of greatest interest; for there always are existent less easily recognizable, and perhaps even more important, vascular peculiarities; vascular states can be regulated properly only through attention to personal hygiene.

It can be said with truth, that surgery and mechanical therapeutic devices are simply aids, that are needed only occasionally to help personal hygienic regulations restore the health. The facts are, that sometimes surgery is indispensible, and at other times artificial supports are absolutely necessary, while vascular and hygienic conditions must always be compatible with health or otherwise the other measure will fail.

CHART I

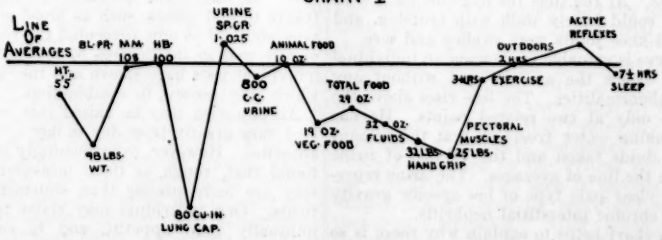


CHART 2

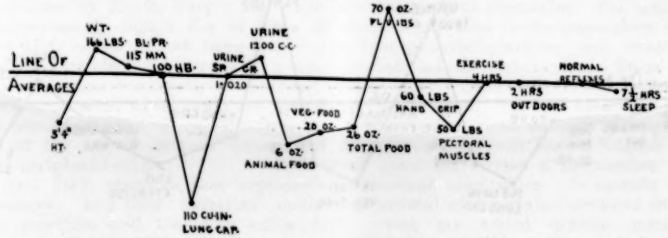


CHART 3

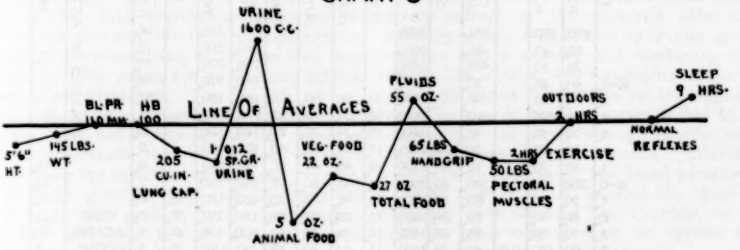


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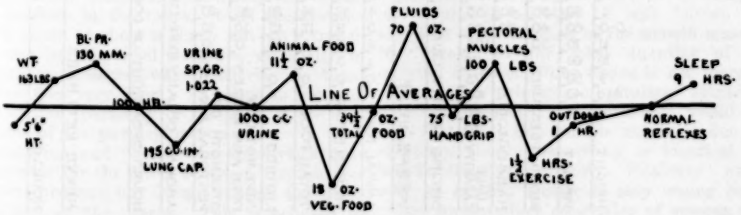


CHART 5

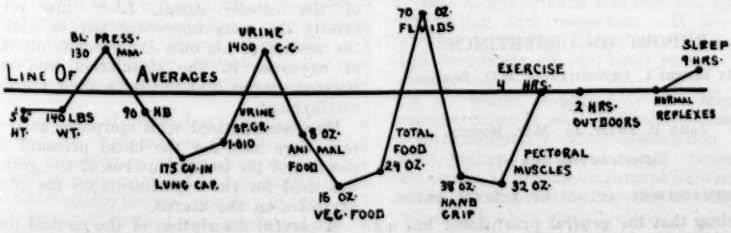
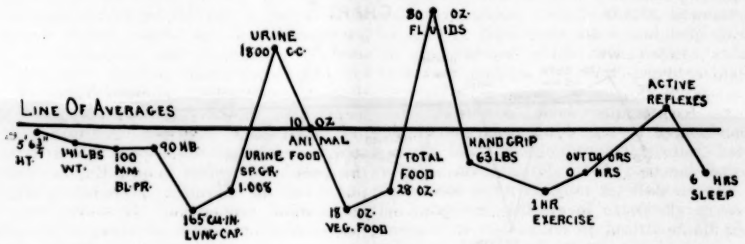


CHART 6



	FEET	INCHES	POUNDS	M.M. Hg. MAX.	CUBIC INCHES	Sp. Gr.	C.C.	OUNCES	OUNCES	OUNCES	OUNCES	POUNDS	POUNDS	MAX.	HOURS	DEGREES OF ACTIVITY	HOURS
			290	250	435		3800					220	220		17		
			80	40	20		3600					210	210		16		
			70	30	405		3400					200	200		15		
	6	6	60	20	90		3200					190	190		14		
	5		50	10	75		3000	20	60	80	100	180	180		13		
	4		40	200	60		2800	19	57	76	95	170	170		12		
	3		30	90	45		2600	18	54	72	90	160	160		11		
	2		20	80	30	1048	2400	17	51	68	85	150	150		10		
	1		10	70	15	44	2200	16	48	64	80	140	140		9		
	6	0	200	60	300	40	2000	15	45	60	75	130	130		8		14
	11		90	50	85	36	1800	14	42	56	70	120	120	8	7		13
	10		80	40	70	32	1600	13	39	52	65	110	110	7	6		12
	9		70	30	55	28	1400	12	36	48	60	100	100	6	5	VERY	11
	8		60	20	40	24	1200	11	33	44	55	90	90	5	4	ACTIVE	10
AVERAGES	5	7	150	110	225	1020	1000	10	30	40	50	80	80	4	3	ACTIVE	9
			140	100	210	16	800	9	27	36	45	70	70	3	2	NORMAL	8
			30	90	195	12	600	8	24	32	40	60	60	2	1	SLUGGISH	7
			20	80	80	08	400	7	21	28	35	50	50	1	0	VERY SLUGGISH	6
			10	70	65	04	200	6	18	24	30	40	40	0			5
			100	60	50	1000	0	5	15	20	25	30	30				4
			90	50	40	35		4	12	16	20	20	20				3
	5	0	80	40	30	20		3	9	12	15	10	15				2
			70	30		105		2	6	8	10	0	0				
			60			90		1	3	4	5	0					
			50			75		0	0	0	0						
	4	8	40			60											
			HEIGHT	WEIGHT	BLOOD PRESSURE	HAEMOGLOBIN	LUNG CAPACITY	SPECIFIC GRAVITY URINE	VOLUME URINE	ANIMAL FOOD	VEGETABLE FOOD	TOTAL FOOD	LIQUIDS	STRENGTH OF FOREARM MUSCLES	STRENGTH OF PECTORAL MUSCLES	AMOUNT OF DAILY EXERCISE	HOURS SPENT OUT OF DOORS	NERVE REFLEXES	HOURS OF SLEEP

TABLE I

Medical Progress.

REPORT ON OBSTETRICS.

BY ROBERT L. DENORMANDIE, M.D., BOSTON,

AND

JOHN B. SWIFT, JR., M.D., BOSTON.

(*Concluded from page 729.*)

PHARMACOLOGIC ACTION OF ECBOLIC DRUGS.

Feeling that the general practitioner has not been able to keep in touch with the recent advancement in the chemistry and pharmacology of the ecbolic drugs, Lieb[7] has reviewed briefly the more important papers, and gives the results of his own experiments on the use of oxytocics in the circulation and on the isolated uterus, and indicates their therapeutic employment.

Dogs anesthetized with morphine and chloretone were used for the blood pressure experiments and the isolated uterus of the guinea-pig was used for the experiments on the effects of oxytocics on the uterus.

A careful description of the method used accompanied the article, including some excellent

drawings and some of the blood pressure tracings.

Ergotoxine, isolated from ergot first by Tanret and later by Kraft, Barger and Carr, injected intravenously into a dog in doses of 1 mg. per kilo, causes almost immediately a pronounced rise in blood pressure with a considerable slowing and weakening of the heart. The rise occurs in a cat whose brain and spinal cord have been destroyed. It is, therefore, independent of the central nervous system and must be of peripheral origin.

Barger and Dale conclude that ergotoxine first stimulates and then paralyzes motor myoneural junctions and that this action is limited to those nerve endings which are connected with the true sympathetic system.

Therapeutically an isolated guinea pig's uterus treated with ergotoxine shows an increase in the rate and strength of contractions.

Ergotoxine used during labor has not been satisfactory. The pains are much more intense but much less persistent.

These therapeutic experiments suggest that ergotoxine does not represent the full action of ergot. Furthermore, the rise in blood pressure which follows the injection of an ergot preparation is much greater than can be explained by the ergotoxine present in the preparation. This blood pressure rise is due to several amines, the most important of which is para-hydroxyphenylethylamine. This causes a sharp rise in the blood pressure due to vasoconstriction. On the isolated uterus it may cause an increase in the rate of contractions or in addition a more complete contraction and a distinct increase in the tonus. Used therapeutically it seems to show a sharp but very transitory rise in the blood pressure, especially in patients in collapse when the rise in blood pressure was very short. It seems to have no effect on the frequency or strength of the contractions of the parturient uterus.

Ergotoxine and para-hydroxyphenylethylamine account for the effect of ergot preparations on blood pressure but do not explain the striking action on the uterus. This is believed to be due to beta-imidoazolyethylamine. This substance produces an immediate and prolonged fall in the blood pressure associated with peripheral vasodilatation. On the isolated uterus in concentration of a 1:600,000, it produces a marked contraction with cessation of rhythm in maximal tonus. Used during labor, doses of 1 to 2 mg. led to respiratory disturbances and convulsions with only a slight stimulation of the uterus.

The action of Galenical preparations of ergot may be explained as follows: The initial fall in pressure which often occurs after their intravenous injection is due chiefly to the beta-imidoazolythylamine, partly to the isoamylamine; the marked and prolonged rise is due almost entirely to the para-hydroxyphenylethylamine and only in small part to the ergotoxine. The action on the vaso-motor nerve cells and the bluing of the cock's comb are due solely to ergotoxine. The action on the uterus is referable to the ergotoxines, the para-hydroxyphenylethylamine, but essentially to the beta-imidoazolythylamine. There are also many other substances present, some of which are depressant, others inactive; chemical standardization of so complex a drug is out of the question. A well known English firm has put upon the market a preparation which is of constant composition. It consists of a certain amount of ergotoxine, obtained from ergot, to which are added definite quantities of synthetic para-hydroxyphenylethylamine and beta imidoazolythylamine.

Pituitary Extract. The intravenous injection of an extract of the posterior lobe of the pituitary gland is followed by a rise in blood pressure and a slowing and weakening of the heart. The slowing and weakening of the heart is due to direct stimulation of the vagus center. The rise in blood pressure is due to vasoconstriction, the drug acting directly on the muscular coats of the vessels. Diuresis is secondary to the rise in the blood pressure but a second dose does not increase the blood pressure but does increase the diuresis, so there must be some substance in the extract which directly stimulates the kidney cells.

On the isolated uterus pituitary extract 1:600 causes very complete contractions and then tetanus, broken by incomplete relaxations. Injected into pregnant animals, it produces abortions. Injected into a lactating animal a prompt secretion of milk follows probably due to stimulation of the smooth muscle of the breast, as the total quantity of milk secreted in twenty-four hours is not increased.

The active principle of pituitary extract has not been identified. Experiments would indicate that its action on the uterus is due to a substance closely resembling or identical with beta-imidoazolythylamine. Pituitary extract may be applied locally to stop oozing hemorrhages or to reduce congestion of mucous membranes. It is chiefly indicated in uterine inertia. It is said to be more valuable than ergot in post-partum hemorrhage and subinvolution. The chief dangers associated with its use are uterine tetanus and rupture, and fetal asphyxiation and impaction. It is contra-indicated in cardiac disease or arterio-sclerosis when an abrupt rise in blood pressure would be dangerous.

It is readily destroyed by the alimentary ferments, hence it must be used subcutaneously or intramuscularly when stimulation of the uterus, kidney, and bowel result. Injected intravenously, it produces a prompt but transitory rise in blood pressure, slowing of the heart, diuresis and uterine stimulation.

Quinine. On the isolated uterus quinine

1:100,000 caused an immediate increase in the rate and strength of the contractions, with the tonus moderately improved, an increase of the concentration to 1:25,000, threw the uterus into spasm, which later showed signs of poisoning and then death. To induce labor quinine is administered in doses of from 0.5 to 1 gram. Maurer believed that in 87% of his cases he could ascribe to quinine a pronounced ecbolic effect within forty minutes of the first dose. Failures are probably due to either lack of absorption or to depression of the uterus from excessive doses.

Iso-quinolines. This group is composed of hydrastine, narcotine and landanosine, alkaloids having a strychnine-like action on the spinal cord.

Hydrastine is the least toxic of this group. In the author's experiments hydrastine produced a marked and prolonged fall in blood pressure without preceding rise. On the isolated uterus, solutions of 1:50,000 produces a temporary cessation of rhythm in maximum tonus soon broken by comparatively large relaxation. More concentrated solution after momentary tetanus causes death of the uterus in extreme relaxation.

Hydrastinine is less toxic than hydrastis with the same pharmacologic action.

Cotarnine, marketed under the name of stypticin or styptol is derived from narcotine.

Intravenously in doses of 5 mg. per kilo there is a momentary fall in blood pressure followed by a slight rise. The heart rate is unchanged. On the isolated uterus, there is an increase in the rate of contraction and in tonus.

Therapeutically the drugs can be employed in menorrhagia and metrorrhagia, though it has been suggested that they might be of value in post-partum hemorrhage. The drugs stimulate the uterine muscles directly, the organ contracts as a whole, the lumen of the intramural vessels is obliterated and the bleeding stops.

Viburnum. Small amounts of the fluid extract of viburnum caused a considerable increase in the rate and an improvement in the tonus of the isolated uterus.

Sodium valerianate failed to produce any stimulation on the uterus and in high concentration proved distinctly toxic. Its sedative action cannot be due, therefore, to its action on the uterus. Presumably it quiets the irritable central nervous system and the uterus is affected secondarily. Apparently its use is purely empiric.

His conclusions are as follows:

1. Ergot owes its pharmacologic action to several constituents; of these, ergotoxine alone is specific. Beta-imidoazolythylamine, parahydroxyphenylethylamine and the other sympathonimetic amines are products of the putrefaction which occurs during the manufacture of the Galenical preparations. Each constituent has a distinct pharmacologic action; stimulation of the uterus is characteristic of them all. In obstetrics at least no single active principle can replace active preparations of whole ergot.

2. Extracts of the posterior lobe of the pituitary gland stimulate all smooth muscle. It has been suggested that the active constituent of the infundibulum is the hormone which initiates normal labor. The extract of the pituitary is the most reliable ecbolic which the obstetrician has at his command. Its promiscuous employment during labor cannot be too strongly condemned.

3. Because of the stimulating action of quinine on the isolated uterus it may be employed to induce or strengthen labor pains.

4. The improvement that follows the use of iso-quinolines in menorrhagia and metrorrhagia is due not to changes in the circulation or in coagulation time, but to a direct action on the uterus.

5. Fluid extract of viburnum stimulates the isolated uterus. Its action in dysmenorrhoea is therefore not due to an effect upon the uterus, but to a depression of the central nervous system.

PUBIOTOMY VERSUS CAESAREAN SECTION IN INFECTED CASES.

Rongy points out that a great deal of the work of the consulting obstetrician is in those cases where there is dystocia, due to disproportion of the size of the fetal head and the pelvis, in which attempt has been made at delivery by the general practitioner, and in which asepsis and antisepsis has not been scrupulously observed.

There are three methods of delivery at our command. First, high forceps; second, Caesarean section; third, pubiotomy. He believes that high forceps in the light of our present surgical knowledge is hardly justifiable, especially in primiparae. The effect on the mother is bad. Most of the plastic operations are a result of badly managed forceps cases. It is the only procedure in surgery where an attempt is made to pull a mass through an opening too small to admit of its easy passage without first enlarging the opening, or making the mass smaller. Its effect on the child is too well known to need discussion. Accordingly, we are left with either pubiotomy or Caesarean section.

Here Rongy distinctly states that he is not attempting to place pubiotomy in competition with Caesarean section. Pubiotomy he regards as an operation of emergency and not of election. He believes that pubiotomy is the only operation in border-lines cases that have been mismanaged or misjudged. It adds but little additional risk to the mother. The head should be somewhat engaged and forceps should have

been attempted and if then the child is alive, pubiotomy should be performed. He has followed the technic of Döderlein and he reports in detail nine cases in which he has done the operation. He feels that the operation should not be attempted except by a carefully trained gynecological surgeon as the injuries to the soft parts, the bladder and the urethra may be quite extensive. The sacro-iliac joint may be injured and if this possibility is not born in mind, permanent disability may result. Hemorrhage may be profuse. Communicating vaginal tears may take place. However, in cases that have been misjudged and neglected, with the child still viable, it is the only method of procedure, and only an experienced obstetrician should undertake its performance.

His conclusions are as follows:

1. A close study of statistics of Cesarean section of various operators compel us to assume that cases which are brought into the hospital with a history of a long and tedious labor, who were frequently examined or where delivery by forceps has been attempted, are supposedly infected and therefore abdominal section should not be the operation of choice.

2. In such cases pubiotomy becomes the operation of necessity, for it adds very little danger to the mother and it saves the child.

3. Pubiotomy is not an operation of election.

4. Cesarean section and pubiotomy never compete. In cases when Cesarean section is indicated, pubiotomy is contraindicated and vice versa.

THE TREATMENT OF THE TOXEMIA OF PREGNANCY WITH THE SERUM OF NORMAL PREGNANT WOMEN.

After suggesting the possibility of the use of serum obtained from normal pregnant women for the treatment of toxemias of pregnancy, the author[9] states that he has recently been injecting the serum intradurally rather than intravenously in cases of eclampsia. He was led to do this by the picture of severe poisoning of the central nervous system which the eclampsia presented. He has also tried the serum in cases of puerperal sepsis since many puerperae have hemolytic streptococci in their lochia without themselves being sick. One can assume that theoretically their serum is the same as that of convalescents. Three of his septic cases treated with injection of serum showed that this treatment had a bearing on the result.

PUERPERAL INFECTION.

Watkins'[10] paper is a summary of his experiences of one hundred cases of puerperal infection covering a period of eight years since operative interference was given up by him. Of these cases ninety-one recovered and nine died. Watkins feels that the attempt to classify puerperal infections complicates the study of the disease and the classification is of scientific interest but not of practical value.

The disease is essentially systemic and has ceased to be a local one when fever is present. He feels that the bacteriologic examination of vaginal and uterine secretions is of relatively small value as the results are often uncertain and misleading. The clinical findings usually determine the diagnosis, and if one relies entirely on the laboratory diagnoses by the examinations of the secretions the danger of making the wrong diagnosis is great.

Watkins says the important part of the treatment of puerperal infection is the use of remedies to increase the body resistance and the abandonment of measures that interfere with the development of immunizing substances. Food, sleep and good elimination are essential. The outdoor treatment is the most valuable remedy known in the treatment of puerperal infection. To promote elimination two quarts of fluid is the minimum amount given. Stimulants are not used. Anodynes and hypnotics are given in moderation to relieve pain and to procure at least six hours of sleep. An ice bag is kept over the lower part of the abdomen and the head of the bed is elevated to promote drainage. He says vaginal and intrauterine douches and medicinal applications are harmful, meddlesome and useless procedures. Retained products of conception should be left to escape spontaneously except in cases of hemorrhage, when gauze packing should be used to hasten separation of retained tissue. Pelvic exudates usually disappear entirely by absorption; only the exceptional case requires incision and drainage. Suspected cases of free pus in the abdominal cavity Watkins believes should have an exploratory vaginal section to determine the diagnosis and the indications for treatment.

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For a review of the recent literature on the sero-diagnosis of pregnancy, the reader is referred to the article by A. K. Paine, M.D., appearing in the BOSTON MED. AND SURG. JOUR., February 26, 1914.

Reports of Societies.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

MEETING OF FEBRUARY 19, 1914, AT THE BOSTON MEDICAL LIBRARY.

D. H. FULLER, M.D., Secretary.

DR. J. W. COURTNEY read a paper entitled,

ON TERRITORIAL AUTONOMY IN CEREBRAL CIRCULATION AND ITS RÔLE IN THE GENESIS OF SYMPTOMS IN THE PSYCHONEUROSES.*

DISCUSSION.

DR. G. L. WALTON: It may at least be claimed for this theory that no more satisfactory one is at present forthcoming. As the reader has said, the expressions, "dissociation of personality," and the like, do not really go far towards explaining the symptoms under consideration. Again, when I presented the subject at the American Neurological Association in the paper to which Dr. Courtney refers in courteously crediting me with advancing the vasomotor theory, a favorite recourse of the disputants seemed to be the word "dynamic," as explaining the cerebral changes in hysterical monoplegia. This explanation also is vague and unsatisfactory, and presents nothing of which we have a recognized analogue in other parts of the body. There is a certain fascination in the proposition that separation of neurones may explain these transitory disabilities, but this is another purely theoretical proposition and on the whole less satisfactory than the vasomotor theory. It may fairly be assumed that: (1) Psychic processes are capable of producing mechanical changes in the organism. (2) The best recognized of these mechanical changes are vasomotor changes, of which need only be cited the pallor of fear and the blush of shame. (3) Such vascular changes certainly do occur at the periphery in hysteria, offering a visible analogue of the cerebral changes suggested in this theory. (4) The vascular changes in the periphery are hardly capable of explaining the symptoms under consideration, for hysterical anesthesia indicates not a simple loss of sensation, such as appears when the foot falls asleep, but involves a false interpretation which means cerebral disorder.

Dr. Courtney has added to the weight of the theory by citing recent advances in cerebral vasomotor control. At the time I presented the subject in 1884 it was assumed in my postulate that such vasomotor control existed, though there was at that time no tangible evidence to verify the supposition.

DR. A. MYERSON: Dr. Courtney's paper divides itself easily into two parts, one as to whether or not there are autonomic vasomotor centers in the brain, and secondly, whether vasomotor disturbances of a territorial kind are the cause of hysterical phenomena. For the first question, I think the answer is as Dr. Courtney has indicated, "Yes, there are such centers." Both by the experiments he has quoted, by analogy and by inference, we have a right to assume the existence of territorial regulation of the blood supply of any part of the brain. For the second question, the answer is not quite so certain. Dr. Courtney's explanation is simple, but it is almost too simple. Associated with the explanation are such obstacles as seem to me to be insuperable.

First of all, the mere fact that in the paralyzed limb of a hysteric, there is pallor and evidence of vasomotor disturbances, as well as paralysis, shows nothing concerning the origin of paralysis and its relationship to vasomotor disturbances. In the paralyzed limb of a patient suffering from anterior poliomyelitis, there are vasomotor disturbances, but no one assumes that the vasomotor disturbances have caused the paralysis. It is well understood that they are coincident and have a separate injury for their origin, a mechanism which is impaired at the same time that the motor cells are injured. So in hysteria, it may well be that the vasomotor symptoms are mere accompaniments and stand in no causative relationship to the other symptoms.

Secondly, if a cerebral spasm and anemia is responsible for paralysis in hysteria, that spasm lasts as many years, for example, as the paralysis, and then it is inconceivable to me that no permanent damage is done, that recovery can be complete and quick. Any part anemic for years, especially nerve cells, must be permanently damaged no matter what the cause of the spasm, and the limb which such cells innervate, would suffer correspondingly. The transiency, changeability of symptoms in hysteria makes the vasomotor explanation plausible until one looks deeper and then inadequacy appears.

Third, if vasomotor spasm or injury be responsible for symptoms, how does it then happen that the paralysis of hysteria practically never follows the known physiologic innervations, that it never corresponds to the cortical innervation, or peripheral nerve distribution, or the segmental arrangement, as in the spinal cord? It corresponds to an idea, the well-known glove paralysis or anesthesia. It includes surfaces not influenced in organic diseases. It is not accompanied by changes in the reflexes, such as organic diseases involving known territories bring about. In other words, it has no known relationship to territories as we now understand those territories. While the future may bring us knowledge of territorial innervation which we do not now possess, present-day theories cannot base themselves upon the future. Finally, as a pathologist, I sincerely seek physical explanation of mental phenomena. Vasomotor disturbance as a cause for hysterical symptoms appeals, but as I said at the commencement, its defects as an explanation are too apparent for my acceptance.

DR. C. K. RUSSELL: Regarding the characteristic distribution of the loss of sensibility in hysterics, namely, that which has been descriptively termed stocking or glove anesthesia, it may be of interest to refer to two patients who came under my observation when an interne at Queen's Square, in order to show that this distribution may not be merely due to the patient's conception of segmentation in the limbs. The first case I had the privilege of observing with Dr. Gordon Holmes; the second was under my own charge, and was very similar to the first. Both were cases of Jacksonian epilepsy, with the convulsions beginning in the left hand and face. Following the convulsion, in which there was little or no loss of consciousness, I noticed that besides the motor weakness of the affected side, there was a distinct loss of sensibility to pin prick

* See page 745.

extending over the half of the body and the corresponding limbs, a hemianalgesia. The recovery from this loss of sensibility was peculiar in that it began to be recovered from on the body, starting from the outside and progressing towards the midline in concentric circles. About the same time as it began to recover on the trunk, recovery was also noticed on the foot and at the shoulder, and progressed up the leg and at the same time down the arm, the hand from the wrist taking a relatively longer time to recover its sensibility. Observations following several attacks all corresponded in showing the same method of recovery of sensibility.

The results of brain disturbance which produce the march of a Jacksonian fit evidently, I imagine, are recovered from in a similar manner to that in which they are affected, viz., in receding concentric circles.

NEW ENGLAND PEDIATRIC SOCIETY.

The twenty-ninth annual meeting was held in the Boston Medical Library, Jan. 23, 1914. C. A. PRATT, M.D., President; FRITZ B. TALBOT, M.D. Secretary.

DR. CHARLES G. MIXTER read a paper entitled

A CASE OF LYMPH CYST OF THE MESENTERY.*

DISCUSSION.

DR. J. L. MORSE: I would like to speak of just one case which was on my service at the Children's Hospital, I think two years ago, which gave all the physical signs of a cyst of the mesentery, and which was, for all practical purposes, a cyst of the mesentery. It occurred in a small boy whom we had seen a year previously with tuberculosis of the mesenteric glands. In the course of the year these had broken down and he had a cold abscess about the size of an egg-plant which gave all physical signs of a cyst. Dr. J. S. Stone operated and removed it *en masse*, with good recovery.

DR. MAYNARD LADD read a paper entitled,

THE INFLUENCE OF ALKALIES ON THE GASTRIC MOTILITY IN INFANTS.**

The paper was illustrated by lantern slides of serial radiographs. Three infants were studied. Lime water in proportions of 25 and 50% of the total mixture, and bicarbonate of soda and citrate of soda, 2 grains to two ounces of the feeding, were given. The presence of lime water appeared to hasten the emptying time of the stomach by from one to two hours, if the casein was in the form in which it naturally occurs in milk. On the contrary, when the casein had been previously precipitated the addition of lime water had no material effect upon the gastric motility. Sodium bicarbonate had much the same effect as the lime water. Sodium citrate showed the least effect upon motility; its action was not at all marked. The rate at which the stomach emptied itself in the first two hours of digestion was only slightly accelerated, both with the lime water and the bicarbonate of soda, the effects of the alkalies being exerted chiefly in the latter part of the digestive period, probably due to their action in breaking up the casein curd so that the gastric protein digestion could proceed under the same favorable conditions provided in the case of precipitated casein mixtures.

DISCUSSION.

DR. J. L. MORSE: It is a pity to let such good work as this go by without saying something about it. I do not know whether all the gentlemen here realize how much confusion and uncertainty there is about the action of alkalies on the digestion of casein and the emptying of the stomach. If they did, they would appreciate better how important this work is and how much it may help us. Dr. Ladd has called attention to another important point and that is the question of the net energy value of the protein in relation to the time required for its digestion. As far as I know, no one has ever spoken of this point before, although Chapin of New York has called attention to the difference in the net energy value of the sugars, that of malt sugar being greater than that of milk sugar and cane sugar. Another point which he has brought out is the action of fat on the emptying time of the stomach. These results are rather surprising, as they are noticeably different from what we have learned as to the action of fat on digestion in adults.

DR. JOHN LOVETT MORSE read a paper entitled,

INFANTILE SCORBUTUS.

There has been both an absolute and relative increase in the number of cases of scurvy coming to the medical out-patient department of the Children's Hospital during the last few years. The per cent. of cases of scurvy to the total number of new cases during the last ten years is as follows: 0.11, 0.43, 0.17, 0.33, 0.24, 0.24, 0.47, 0.61, 0.67, 0.87. Analysis of the cases showed that 20% were fed on condensed milk or proprietary foods mixed with water. The milk was heated in at least 81% of the cases in which it was used either with or without proprietary foods. It would seem from these figures that proprietary foods, "stale" foods, or the heating of milk to the temperature of pasteurization or higher, may all play a part in the etiology of scurvy. The proportion of babies fed on the proprietary foods in 1913 was much smaller than in 1905. Boiling of the milk was much more common in 1913 than in 1905. Further analysis of the cases showed that the percentage of pasteurized milk used in Boston has increased very rapidly during the last six years coincident with the increase in the number of cases of scurvy. The figures are as follows:

Year.	Percent. of Cases.	Percent. of Pasteurized Milk.
1908	0.24	33.58
1909	0.24	30.68
1910	0.47	63.50
1911	0.61	73.02
1912	0.67	70.59
1913	0.87	80.00

* This paper was published in the JOURNAL of April 2, 1914, p. 536.

** Published in the JOURNAL of April 2, 1914, p. 518.

This, of course, suggests, but does not prove, some relation between the pasteurization of milk and the increase of cases of scurvy.

Analysis of the symptomatology of the cases showed that crying on handling was the first symptom noted in 69 cases, and paresis in 11. Tenderness of the legs and crying on being handled was found in every case, swelling in 25, paresis in 23, rigidity in 15 and inflammation of the gums in 37. The errors in diagnosis were numerous, which shows that in spite of all that has been written and said about infantile scorbutus during the past fifteen years, many physicians are still unfamiliar with the disease or unable to recognize it.

DISCUSSION.

DR. MAYNARD LADD: A good many children are practically getting a pasteurized or a boiled milk when, according to the history given by the mother, they are being fed on raw milk. I have seen three or four perfectly definite instances where, according to the mother's statements, the children were taking raw milk, and yet the children unquestionably had scurvy. Going into the cases farther, I have found that it was the custom of the mothers to take the bottle of milk, put it in boiling water, then prepare the child for the feeding, change the diapers tuck it up carefully, and then take the milk from the boiling water and cool it down to the proper temperature. That is a way of boiling milk, or pasteurizing it, which we do not ordinarily appreciate, and which I believe accounts for many cases of scurvy in babies who are fed supposedly on raw milk. Personally I believe that long-continued use of a milk pasteurized at a high temperature, or boiled milk, may, in a considerable number of cases produce scurvy, but if there is any reason for the giving of pasteurized milk for a long time, the danger can be materially reduced by giving orange juice. I have repeatedly fed children for many months on pasteurized milk where orange juice given in small amounts safeguarded against any tendency towards scurvy.

DR. W. P. COLES: I would like to ask Dr. Morse if it is not true that the statement has been spread rather broadcast in the last two years since the epidemic of septic sore throat that pasteurization of milk is not harmful?

DR. R. W. HASTINGS: I also desire to ask Dr. Morse if he still holds to his own opinion expressed not long ago that pasteurization or boiling of the milk does not injure babies. I would like to say just a word on this subject. At St. Mary's Infant Hospital some years ago, I should say seven or eight there were cases of scurvy undoubtedly. They were using heated milk. For perhaps six or eight years we used the fresh milk, not heated, and had practically no scurvy. Because of the opinion very positively stated by Dr. Rosenau, and not objected to by Dr. Morse, that possibly pasteurization might not have any such effect, for the last year, beginning just about a year ago, the babies there (there have been from 50 to 95 babies all the time) have had foods which were pasteurized. We try to make that a definite pasteurization at 145 degrees for thirty minutes, with all precautions, and to the best of our knowledge there has not occurred any case that could be called scurvy during the year. So far as the experiment has gone, and it is a pretty large experiment—something over 200,000 feedings—this degree of heating has not so altered the food (the formulae varying very much, of course, in different cases) as to bring about any cases of scurvy.

DR. T. J. EASTMAN: (Dr. Morse's paper.) I was going to ask Dr. Morse if he has any idea to what temperature the pasteurized commercial milk is raised? I think they bring it up to 145 degrees, and I think it has been stated before that a percentage of 145 does not alter the characteristics of the milk, whereas the old percentage of 167 or more might alter the characteristics of the milk. The general tendency at the present time is for commercial milk to be pasteurized. The result of the lessening of the number of small dealers is for the large dealers to accumulate milk from a number of dairies and then pasteurize it before it is sold to the public. Along the lines of education which Dr. Morse mentioned it seems to me that if it is a question of the degree of temperature it might be wise to have the milk dealers informed, so that if they are going to pasteurize the milk it should be done at a low temperature.

DR. MORSE, in closing: I feel much complimented to find that some of you have read some of the things which I have written. I have felt for many years that the most important single factor in the causation of scurvy was the heating of milk, and when I was asked, two years ago, to read a paper at a meeting of the Massachusetts Medical Society on the effect of the heating of milk on babies, I started out with the idea that I was going to prove that heating the milk caused scurvy and probably rickets. On looking over the literature carefully I had to come to the conclusion, however, that there was no evidence, theoretical, experimental, or clinical, to prove that the heating of milk caused either scurvy or rickets. I have been over the literature even more carefully since then and have been compelled to come to the same conclusion the second time. In spite of these conclusions, I still feel that my own experience suggests, even if it does not prove, that the heating of milk does play a part in the causation of scurvy, malnutrition and rickets. I feel pretty confident that variations of a few degrees of temperature in the heating of milk does not make any special difference. It is comparatively unimportant whether the milk is heated at 140, 155 or 167 degrees Fahrenheit. More important changes occur if 167° F. is passed. Boiling milk has a very different effect from pasteurization. I think personally that we are going to see much more scurvy in the next five years than we have in the past because of the recent knowledge that boiling the milk makes the casein more digestible. A lot of people are going to boil milk for that reason and a great many are going to forget to give orange juice at the same time.

DR. ARTHUR W. FAIRBANKS read a paper entitled

THE ETIOLOGY OF EPILEPSY.*

* Published in the JOURNAL of April 2, 1914, p. 521.

The Italian Parliamentary Committee has unanimously adopted a report by Professor Casciani on the means of developing the thermal stations of Italy. Among these are the institution of special courses and of travelling professorships that will enable lecturers to go about to different universities carrying on a scientific propaganda.—*British Medical Journal.*

Book Reviews.

Studies in Cancer and Allied Subjects. The Study of Experimental Cancer; a Review. By William H. Woglom, M.D. Conducted under the George Crocker Special Research Fund of Columbia University. Vol. 1. Columbia University Press, New York City. 1913.

This is an imposing quarto sized volume of 288 pages, of which the printed matter of each page would easily go on an ordinary octavo page. The increased size is due to wide margins. The contents consist of chapters as follows:—

1. Brief Historical Review.
2. Attempts to Produce Tumors.
3. Earlier Observations on the Transmissibility of Cancer.
4. Transplanted Tumors.
5. Resistance.
6. Hypersusceptibility.
7. The Spontaneous Tumor.
8. Tumors of a Nature Still Undecided.
9. Therapeutics.
10. General Summary.

It is evident that the task of the author was a large one, and he has acquitted himself well, in spite of some omissions of work of importance and the inclusion of work of doubtful significance and reliability. It is worth while reading by those who wish to obtain an idea of activities and progress in cancer research. The extravagant manner of publication is to be deprecated.

Studies in Cancer and Allied Subjects. From the Department of Zoölogy, Surgery, Clinical

A collection of papers published in the same extravagant manner as the rest of the series.

Studies in Cancer and Allied Subjects. Contributions to the Anatomy and Development of the Salivary Glands in Mammalia.

A beautifully illustrated volume, similar to others of this series, containing the following papers; of interest only to embryologists and comparative anatomists.

1. A Contribution to the Anatomy of the Human Adult Salivary Glands. By Churchill Carmalt.
2. The Development of the Human Salivary Glands. By H. von W. Schulte.
3. The Anatomy of the Salivary Glands in the Lower Primates. By George S. Huntington.
4. The Genetic Interpretation of the Primate Alveolingual Salivary Area. By George S. Huntington.
5. The Anatomy of the Salivary Glands in the Carnivora. By Churchill Carmalt.
6. The Development of the Salivary Glands in the Cat. By H. von W. Schulte.
7. The Anatomy of the Salivary Glands in Some Members of Other Mammalian Orders (Marsupials, Insectivora, Rodents and Ungulates). By Churchill Carmalt.
8. The Mammalian Alveolingual Salivary Area with Special Reference to the Development of the Greater Sublingual Glands of the Pig, Together with a Review of the Literature. By H. von W. Schulte.

Urinary Diseases. By Stephen H. Blodgett, M.D. Boston: Whitcomb and Barows. 1914.

This book, as stated in its preface, has evidently been compiled in large part, from notes used by the author in his lecture for nurses. It is, therefore, a book of well-known facts connected with urinary diseases, stated simply and briefly for the use of nurses. Its nine chapters are followed by two supplementary sections, one of which is devoted to the consideration of recipes, suitable for the patient suffering from glycosuria, and the other to a tabulation of the starch and protein contents of various foods. The book is well printed on good paper, is adequately indexed, and should serve the puprose for which it was evidently written.

Genito-Urinary Diseases and Syphilis. By Edgar G. Ballenger, M.D., Adjunct Clinical Professor of Genito-urinary Diseases, Atlanta Medical College; Urologist to Westley Memorial Hospital, etc. Assisted by Omar F. Elder, M.D. The Wassermann Reaction by Edgar Paullin, M.D. Second edition revised. pp. 527, with 109 illustrations and 5 colored plates. Atlanta, Georgia: E. W. Allen and Company.

The first edition of this book, aimed "To present the fundamental principles, and to enter, at the same time, into sufficient detail when considering matters of prime importance." In other words, the book was designed to be better and more comprehensive than a quiz compend, and at the same time to stop short of the completeness and bulk of the larger text-books,—a difficult result to accomplish. It apparently succeeded, however, in its object for now appears the second edition, compelled by the many advances in our urological knowledge, during the last two or three years.

"The more satisfactory treatment of gonorrhea, vaccine therapy, Rowntree and Geraghty's test for functional activity; pyelography; the Wassermann reaction and leutin test; the cultivation of the spirochaeta pallida,

the use of the dark field illumination in the demonstration of the spirochaeta pallida, the inoculation of animals with syphilis, and the discovery of salvarsan and neosalvarsan" are some of the many recent additions to the field of urology which made this edition necessary.

The increase of our knowledge of urology both in scope and in precision, has been so enormous in the last few years that a compilation of a real text-book into one volume has greatly increased in difficulty. How impossible must it be then to put that knowledge before the medical public in 500 pages! That is the task the writer set himself, and on the whole, he has succeeded fairly well. A very brief consideration of subjects which might seem worthy of a more extensive presentation is often evident, but for the most part, the author has maintained a just perspective and has given us a book of value, a book which carries its subject up to the year of its publication.

Type and paper are of fair quality, and some of the cuts and photographs are excellent, while others are far from being so.

Dorland's American Illustrated Medical Dictionary. A new and complete dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Veterinary Science, Nursing, Biology, and kindred branches; with new and elaborate tables. Seventh revised edition. Edited by W. A. NEWMAN DORLAND, M.D. Large octavo of 1107 pages, with 331 illustrations, 119 in colors. Philadelphia and London: W. B. Saunders Company. 1913.

The seventh edition of this valuable dictionary does not differ in appearance or materially in size from its predecessor. The rapid growth of certain branches of medical science has demanded the addition of a large number of words and terms, particularly in the fields of serology, physiology, pathological chemistry and experimental medicine. A complete revision of the book has been undertaken and upwards of 5000 new terms defined. The volume is published as before in flexible covers, and in general it maintains its character of convenience, completeness and reliability.

Supplement to Illustrate an Operating Theatre in Private Practice. By C. HAMILTON WHITEFORD, M.R.C.S., L.R.C.P. London: Harrison and Sons. 1914.

Mr. Whiteford's original monograph was reviewed in the issue of the JOURNAL for Sept. 19, 1912 (Vol. clxvii, p. 402). This supplement has been prepared in response to requests for a plan and illustrations, which are here provided in three full-page plates. The author has also included a description of additions made to his operating theatre during the year 1913, consisting of a glove-drier, a needle for fascia and muscle, an apparatus for rectal seepage, an apparatus for maintaining Fowler's position, a surgical diet chart, and a list of instruments and linen. The pamphlet is a convenient complement to the unique and valuable original.

Pathology. General and Special. A Manual for Students and Practitioners. By JOHN STENHOUSE, M.A., B.Sc. Second edition, revised and enlarged. Illustrated with twenty-nine engravings and a colored plate. 1913.

This book is a quiz compend in pathology; essentially a book of definitions with questions appended to the various chapters. Of possible use in cramming for such examinations as might be given by state boards.

The Unexpurgated Case Against Woman Suffrage. By SIR ALMROTH E. WRIGHT, M.D., F. R. S. New York: Paul B. Hoeber. 1913.

Admitting the general premise that women are inferior to men, physically, intellectually and morally, it is manifestly unreasonable to concede equality in the matter of the ballot. This is Sir Almroth's position. The work is written in an irritatingly patronizing style, and if the opinions expressed are widespread in England, our wonder grows less at the indignation of certain men and women as expressed in the outburst of militancy through which that country is passing.

The Elements of Bacteriological Technic. A Laboratory Guide for Medical, Dental and Technical Students. By J. W. H. EYRE, M.D., M.S., F.R.S. (Edin.). Second edition; rewritten and enlarged. W. B. Saunders Company. 1913.

This edition is a marked improvement over the first one. It contains very complete directions for the preparation of media and solutions used in bacteriological work, and the methods of procedures commonly employed in bacteriological research. Descriptions of bacteria are not included. The technic for the Wasserman reaction, opsonic index determinations, complement fixation and bacteriological analysis of water, milk, foodstuffs, sewerage and soil are included. There is a chapter on the testing of disinfectants and a series of useful tables. The book is to be heartily endorsed as adequate for the purposes for which it is intended, namely, a laboratory guide for medical, dental and technical purposes.

THE BOSTON

Medical and Surgical Journal

THURSDAY, MAY 14, 1914.

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FEDERAL OR MUNICIPAL QUARANTINE.

EARLY in his administration Mayor Curley, as part of his program of municipal economy, proposed that the quarantine service of the port of Boston be transferred from the local health department to the federal government, thereby saving this city an expense of about $20,000 a year. This plan was vigorously opposed by the Boston Chamber of Commerce and by the mercantile and shipping interests generally. It was favored chiefly by various public officials. To give both sides an opportunity to express their views, a public hearing was held on April 21, before the executive committee of the city council.

Prior to this hearing, Dr. M. Victor Safford, of the United States Public Health Service, had stated the supposed advantages of federal over municipal quarantine in a communication to the daily press, from which we may quote in part as follows:—

"There seems to be an idea prevalent here in Boston that in the matter of precautions against the introduction of exotic contagious diseases, ships arriving at this port are securing or can secure from a local municipal quarantine management dispensations that could not be obtained if the maritime quarantine officers at Boston were federal officials. Those who entertain this idea do not realize the fact that for all practical purposes the control of federal officials over the management of quarantine at Boston or any other port in the United States or its possessions, is absolute.

"The two diseases whose introduction into the country by foreign commerce are at present to be most dreaded by people in this latitude are cholera and bubonic plague.

"The introduction of either of these diseases or any other serious contagious disease at Boston is a matter which concerns the whole country. Only about one-half the passengers who arrive at Boston stay even in New England. It is through officers of the public health service, acting under the direction of the secretary of the treasury, that the federal government in a supposed emergency exercises its authority to prevent such an occurrence.

"In case of suspected danger of the introduction of cholera at this port, for example, there would be immediately sent to the local quarantine station an officer of the public health service with practical experience in handling cholera. If he should deem the sanitary interests of the country to be jeopardized by the manner in which local quarantine officials were handling the situation, an order of the secretary of the treasury requiring certificates of United States public health officers as a prerequisite for the entry of ships at the Custom House would at once follow. This, however, is not likely to happen. Unless a local quarantine official be a hopeless fool, he would welcome the expert assistance which such a public health officer could furnish him. Experience has shown that on these occasions the federal medical officer has found it advisable to mitigate rather than increase the severity of the measures that a local quarantine official is inclined to impose upon commerce.

"The proposition to turn the Boston municipal quarantine establishment over to the federal government has been made by the city officials. It has not been solicited by the government. With their present power of control over local quarantines the federal authorities are entirely willing that the city of Boston and the steamship companies should bear the expense incidental to the administration of the quarantine of the port if they care to do so. Under a federal quarantine management all costs, including those incidental to the removal from ships of passengers by the wholesale, as occurred here in 1911, fall on the federal government and not on the steamship companies.

"It is well known that the municipal quarantine at Boston has been intelligently managed in accordance with requirements prescribed by the federal government. The writer, who as a United States public health officer has been in close touch with the administration of the local quarantine for ten years, is able to testify to this. He also knows that no concessions to commerce have been granted by the local quarantine officials which would not have been obtained as a matter of course from a federal quarantine management, whatever the shipping interests may think they have been getting. Under their present management and with the power of practical control now possessed by the federal government, the actual administration of either

the Boston or New York quarantines is not regarded so important from a national public health point of view as the quarantines of many other ports already under federal arrangement. There is no reason, however, why the proposed transfer of the Boston municipal quarantine plant should not be advantageous to everybody concerned. Where municipal quarantines have been transferred to a federal management, local commercial interests have never thus far made known any desire to return to previous conditions."

At the hearing these views were reiterated by Dr. Safford. The representatives of the various business organizations in opposition to the proposed change summarized their objections essentially as follows: That the present municipal administration of the Boston quarantine service is highly efficient and satisfactory; that to transfer it to federal administration might interfere with present plans for the development of the port; that New York and Baltimore maintain their own quarantine service; that decisions can be more quickly obtained from local than from national authorities; and that a change would hamper shipping interests and divert business to other ports. Among those who spoke in favor of the change were Mr. George F. Babbitt, a former Boston health commissioner, and Mr. Edward F. McSweeney, chairman of the consumptives' hospital department.

Two days after the hearing, in a letter to the public press, Mr. John A. Sullivan, former chairman of the Boston finance commission, and now corporation counsel of the city, stated effectively the views of the advocates of federal control.

"As many persons must have received the impression that the city of Boston is trying to save $20,000 a year by discontinuing its local quarantine service and transferring the same to the federal government without regard to the interests of Boston shippers, or to the future development of our port, I think it only proper to state that every objection which has been raised by the shipping interests has been stated to the treasury department at Washington and that the department has assured the city authorities that all of these objections will be met in a satisfactory manner. This assurance was given to the Mayor before he took definite steps to have the quarantine service transferred to the federal government.

"The government is willing to station an officer in Boston and clothe him with authority to adjust all matters in relation to quarantine without the delays incident to referring such matters to Washington. It has agreed to arrange for the boarding of vessels from daybreak to dark, or earlier or later, if required, an arrangement similar to the one which it has made for the port of Philadelphia, which is now under federal jurisdiction. It has also agreed to reserve at the quarantine station all existing facilities for the care of smallpox patients or persons affected with other dangerous diseases. In short, it stands ready to maintain a service equal in every respect to that now maintained at this port.

"It is true, of course, that the successor of the present secretary of the treasury might, after the Boston service had been transferred to the federal government, change the regulations to the detriment of shipping interests, but he is not likely to do so any more than Boston health officials in the future would be likely to change the regulations made by the present health officials of the city. The fact that the United States government has since 1893 waived the requirement of local inspection of vessels from Canadian ports, although it might have insisted upon such inspection during the intervening years, should be taken as a sufficient indication of the good faith of the government.

"At present only three important ports in the country are under local control—New York, Baltimore and Boston. In all the other Atlantic ports under the control of the federal government, as well as the ports on the Pacific, all of which are under federal control, the service is performed in a satisfactory manner.

"Quarantine service is not local but national in character. The national authorities have the power to follow suspected cases into any part of the United States and to isolate them for the public protection. Local authorities, whether state or municipal, have no jurisdiction beyond their own boundaries. In this respect municipal or state control of quarantine is inferior to national control. The health of the entire community should be regarded as paramount to the interests of shippers at any port; but where, as in the present case, the shipping interests will be fully protected and public health better conserved, there would seem to be no sound reason for opposition to the proposed transfer.

"It has been suggested that Boston should not take the step until New York and Baltimore have come under federal control. If New York and Baltimore take the same position all three ports will forever remain outside of federal control. If, on the other hand, Boston comes under federal control, and the service proves satisfactory, it is probable that New York and Baltimore will ask that their services be transferred to the federal government.

"Any stranger who attended the hearing at the City Council yesterday would have come to the conclusion that the shipping interests were opposing the transfer because of the ultra-conservatism which fears any change simply because it is change, or because they were now enjoying illegal privileges which they feared they

would lose if placed under federal control. The chairman of the city's Board of Health is authority for the statement that no illegal privileges are given, therefore there seems to be no reason why the shipping interests should oppose the transfer.

"Of course the saving of $20,000 or $25,000 a year is not a matter of great importance. The city can afford to waste this amount of money just as well as it could afford to waste money for any other unnecessary purpose, but if, as the hearing of yesterday clearly disclosed, the service will be at least equal to that now rendered, there ought not to be any opposition to the saving of $20,000 or $25,000 a year by the city, for there are many useful purposes for which this money is needed."

In rejoinder to Mr. Sullivan's communication, the following letter from Mr. William C. Brewer was published in the daily press of May 2:—

"The principal objection advanced by the shipping interests against federal quarantine is that it entails a final decision from Washington on any matters which the local federal doctor feels he must submit to the department. Any one conversant with departmental routine knows what delays this may entail. Under city quarantine an opportunity is given to the interested party to lay his case before the health department and obtain a ruling without any delay.

"Mr. Sullivan perhaps unconsciously supports the position taken by the shipping interests when he writes that the treasury department is willing to clothe their representative in Boston with authority to adjust matters 'without the delays incident to referring such matters to Washinton.' Does not this appear an admission on the part of the federal authorities that the argument of the shipping interests, as to probable delay, is well founded. Even further, Mr. Sullivan admits that a future secretary might modify these concessions 'to the detriment of shipping interests.' And yet the state of Massachusetts is spending $9,000,000 to develop the port of Boston. It is difficult to reconcile the attitude of the city and the state.

"It is not my desire to discuss here the relative merits of federal and local quarantine, suffice it to say, that our local quarantine is subject to federal supervisory control and regulations and that it was conceded that our city quarantine was efficient and able to safeguard the public health.

"I think that the 'fears' of our local shipping, as to any change in the present system, have some justification when the following figures of the transatlantic passengers passing through the principal ports of the United States are noted and their system of quarantine:

New York—State control	1,708,358
Boston—City control	134,318
Philadelphia—State-Federal	87,044
Baltimore—City	47,533
Portland—Federal	15,816
Galveston—State	10,459
New Orleans—Federal	1,491

"Last, and by no means least, as the proposed transfer of our quarantine is based on economy for the city, it is a fact that the arrangement suggested by the treasury department carries with it the proviso that the city shall continue to send down to quarantine and pay the federal government for their maintenance, all cases of infectious diseases and that the city shall agree to maintain a means of transportation to carry such cases to and from quarantine. It would seem as though this arrangement will still cause the city considerable expense, especially as the cost of transportation, particularly in the event of an epidemic, is problematical.

"When all the ports competitive to us pass entirely under federal control, then and not till then, should Boston seriously consider the proposition and even then we must not forget our Canadian rivals, who are advancing by leaps and bounds and successfully catering for a large share of the passenger travel."

It seems that probably both the opponents and the advocates of the change speak from a slightly biased point of view. The latter are public officials and tend to speak *ex parte;* the former, as business conservatives, are prone to object to any change on general principles. As a matter of fact, there seems no urgent need for making the change at present, and again if it were made probably no serious disadvantages would follow.

At the meeting of the city council on May 5, Mr. Sullivan requested more time to investigate the problem, and definite action on the proposal was postponed for another week.

As the JOURNAL goes to press we learn that at its meeting on May 12 the City Council rejected the proposal to transfer the quarantine, but that the plan will probably be revised in connection with the proposed reorganization of the State Board of Health.

THE RELATIONSHIP OF HYSTERIA TO OTHER CONDITIONS.

HYSTERIA is now generally conceded to be a psychoneurosis, in which the primary etiologic factor is mental. Viewing the disorder from this psychic aspect we find that hysteria has most intimate relationships to various other psychic states, normal and abnormal.

In order to understand the more clearly the relationships to which we shall refer, it would be

advisable to review here the two definitions of hysteria which have received the widest recognition. According to Binet, hysteria is a condition of double consciousness, with two streams of consciousness flowing side by side, relatively independent and separated by amnesia. Janet would define hysteria as a form of mental depression characterized by the retraction of the field of personal consciousness and by the tendency to the dissociation and the emancipation of systems of ideas which by their synthesis constitute the personality. From these two definitions as a starting point, various correlationships between hysteria and other allied conditions may be built up. The relationship between hysteria and various other states of mental dissociation at once comes to mind. And, as one would expect, this similarity did not escape the attention of neurologists, psychopathologists and psychiatrists who have concerned themselves with the problem of hysteria.

Janet tells us that to be suggestible is to be hysterical, and that only hysterics can be hypnotized. He believes in the identity of the hysterical and the hypnotic states, based upon the common factor of suggestibility. Sidis has called attention to the so-called hypnoidal state, a mental state or state of consciousness between waking and sleep on the one hand and hypnosis on the other, which is thus a semi-waking state, which is believed by Sidis to be the primitive rest state of animals, and from which both sleep and hypnosis are developed. There is thus a relationship between hysteria and the hypnoidal state, as well as between hysteria and hypnosis. Claperède reminds us that both sleep and hysteria are biological defense reactions. Bernheim asserts that the state of hypnosis is allied to that of sleep. And McDougall points out the similarities between sleep and hypnosis. Prince and others have shown the close relationship between hysteria and the cases of multiple or dissociated personalities. And latterly the results obtained by psychoanalysis have proved the intimate association of hysteria to the so-called psychopathological acts of everyday life, such as slips of the tongue and pen, acts of forgetfulness and the like. Snyder laid stress upon the naïve, simple, infantile, primitive mentality which we find in so many hysterics, and its possible relation to the infancy of the race at once comes to mind. Others have noted certain points of similarity between hysteria and mental enfeeblement.

The most important advance in this direction in the past few years has been given to us as a result of intensive studies in dementia precox. So noteworthy has been the progress that it should be touched upon at somewhat greater length. Psychopathologists look upon dementia precox as an inadequate biological reaction due to internal ideas or external experiences. It is to be noted that this conception had previously been applied to the study of the elucidation of the mechanism of hysteria. It has been found that dementia precox shows many features strongly resembling hysteria. The most prominent features of this type are the delirious episodes, the irrelevant replies to questions, the stupor, the vasomotor disorders and peculiar disturbances of consciousness. It is also known that many of the features of katatonic stupor resemble hypnosis. It was this which led Evenson to regard dementia precox as a narrowing of the field of consciousness, thus corresponding quite closely with the view of the psychogenesis of hysteria as defined by Janet. It has been discovered that both dementia precox and hysteria show phenomena pointing to a profound mental dissociation, the latter causing a curable hysteria in one case, and an incurable dementia precox in another.

In a recent paper entitled "Recent Trends in the Psychopathology of Dementia Precox," Coriat tells us that Evenson observed a close similarity between some of the prominent symptoms of dementia precox, such as negativism, stereotypy, peculiar attitudes and the reaction of a normal person who has become preoccupied by a thought. Evenson went so far as to suggest that the essential symptoms in both the preoccupied individual and in the katatonic were due to a narrowing of consciousness around a central content. He further declared that there existed a close analogy between hypnosis and katatonic stupor.

It is due, however, to the very splendid work of Jung and Bleuler, the so-called Zurich school, that the most remarkable advance in the psychopathology of dementia precox has been obtained. Jung states that the psychological mechanisms of dreams and hysteria are most closely related to those of dementia precox. As Coriat says, when the underlying complexes control the entire mental life we have dementia precox, whereas when they merely lessen the amount of energy at the disposal of the patient we have hysteria.

REORGANIZATION OF THE BOSTON BOARD OF HEALTH.

In the issues of the JOURNAL for Jan. 22 and Feb. 26 we published editorials on the "Reorganization of the Massachusetts State Board of Health." What was then said of the desirability of a single highly paid commissioner of health in authority, with an unpaid advisory board, is equally applicable to the problem of local health administration in large cities.

In Boston the term of one of the three members of the local board of health expired last month. His place has not yet been filled and the time seems opportune to consider the possibility and desirability of reorganization of the board on the basis which we have approved for the state board. In a recent letter to the daily press on this subject, Dr. Richard C. Cabot said in part:—

"Those of us who followed the work of the board of health for a number of years have reason to believe that the work of that board was never so good as it is today. Despite all of the drawbacks and political interferences to which it has been subjected, it has been and is doing a good work.

"But it ought to do far better work, and it is not at all likely to do so under its present faulty organization. It certainly ought to be a single-headed board and not a three-headed board, as at present. It certainly ought to be free to discharge or pension off its superannuated employees."

What is most important of all is that the reorganized board should be free from political control. The supervision of public health is a business, and should be administered by a competent expert for the benefit of the public.

THE AMERICAN GYNECOLOGICAL SOCIETY.

THE thirty-ninth annual meeting of the American Gynecological Society is to be held next week in Boston, and the medical profession is cordially invited to its sessions. The headquarters of the Society will be at the Harvard Club. The scientific meetings on Tuesday and Thursday, May 19 and 21, are to be held at the Boston Medical Library. Wednesday, May 20, will be spent at the Brookline Country Club.

For the morning session on May 19, four papers are announced, by Drs. Manton of Detroit, Clark of Philadelphia, Byford of Chicago, and Higgins of Pittsburgh. The afternoon session on this day will be devoted to a symposium on anesthesia. In the forenoon of May 20 will be the president's address, by Dr. J. Whitridge Williams, of Baltimore; a memorial of Henry J. Garrigues, by Dr. Brooks H. Wells; and papers by Dr. Robert L. Dickinson of New York, Dr. E. A. Codman of Boston, and Dr. Reuben Peterson of Ann Arbor. In the afternoon the principal paper will be by Dr. Wilhelm Nagel, of Berlin, on "Operative Treatment of Prolapse of the Vagina." Eight papers are announced for the sessions on May 21.

The American Gynecological Society last met at Boston in 1904. The immense progress of the past decade in medical science has affected its specialty as importantly as it has the other branches of medicine, and will be reflected in its proceedings, which will be reported in subsequent issues of the JOURNAL. The cordial welcome of the Boston profession, as well as of the local members of the Society, awaits the members from other cities and the distinguished guests.

MEDICAL LEGISLATION. THE DENTAL NURSE BILL.

IN the issues of the JOURNAL for Jan. 1 (p. 24), and Jan. 22 (p. 139) we commented editorially on the so-called "dental nurse bill," submitted to the General Court by and with the approval of the Massachusetts Civic League, providing for the appointment of a state board of dental examiners in this Commonwealth, and defining their duties. After prolonged discussion, this bill was on May 6 favorably reported to the House by the committee on public health, but with five of the eleven members of this committee dissenting. The fate of this bill in the legislature will be watched with interest by both advocates and opponents. We have only to reiterate our approval of its purpose and our hope that it may be enacted into law.

MEDICAL NOTES.

BUBONIC PLAGUE IN CHINA.—Report from China states that, during the week ended April 29, 193 cases of bubonic plague were notified at Hongkong.

A VERSATILE AND VIGOROUS CENTENARIAN.—Robert Crichton, of Caterham Valley, England, is said to have been born on April 3, 1812, at Alyth, in Perthshire, Scotland. While studying law, he served for a time as clerk to Sir Walter Scott, when the latter was sheriff of Midlothian. In 1839 Crichton sailed for Australia, and spent his active life there as a pioneer in New South Wales. Since his return to England in 1894, he has travelled extensively in Egypt, Italy, and Palestine. In 1910 he renounced his lifelong use of alcoholic beverages, having become convinced that they were injurious to his health. He continues, however, to take snuff, which he believes harmless.

COMPARATIVE MORTALITY OF MEASLES.—Statistics recently published show that the mortality of measles per 100,000 is 48 in Chile, 44 in Hungary, 38 in Spain, 35 in Belgium, 33 in Austria, 29 in England and Wales, 10.8 in the United States, 6 in Sweden, 3.4 in New Zealand, and 2.4 in Australia.

BUBONIC PLAGUE IN HAVANA.—Report from Havana states that another death from bubonic plague occurred in that city on April 30. This makes a total of 16 cases and 3 deaths of the disease since the recent introduction of the infection.

A MUNIFICENT HOSPITAL GIFT.—It is announced that Mr. James Deering, of Cleveland, Ohio, has made a gift of $1,000,000 for the endowment of the Wesley Hospital of that city, with the provision that it shall be a teaching hospital under control of Northwestern University. This munificent gift is made in memory of the donor's father and sister.

GEORGIA MEDICAL HALL.—On Tuesday evening, March 31, the new building of the Georgia Medical Society was formally dedicated at Savannah, Ga., with appropriate exercises. The principal address was by Dr. J. Ewing Mears, of Philadelphia, who spoke on "The Significance of Construction and Opening of the Medical Hall." Dr. Mears has established a foundation in the society's library for the purchase of books.

BOSTON AND NEW ENGLAND.

AN IMPORTANT OPPORTUNITY FOR RESEARCH.—Report from Washington, D. C., on May 4 states that, in response to a letter from Dr. J. Collins Warren, of Boston, Surgeon-General Blue, of the United States Public Health Service, has directed that ten beds in the Marine Hospital at Chelsea, Mass., be placed at the disposal of the Harvard Medical School, for cooperative work in the study of tropic diseases.

TRUSTEES OF BOSTON CITY HOSPITAL.—At the recent annual organization of the board of trustees of the Boston City Hospital, Mr. A. Shuman was re-elected president, and Dr. John J. Dowling, recently appointed, was duly qualified as a member.

NEW HAMPSHIRE MEDICAL SOCIETY.—The one hundred and twenty-third annual meeting of the New Hampshire Medical Society was held at Concord, N. H., on Wednesday of this week, May 13. Among the papers presented by invited guests was one on "The Conduct of a Case of Labor," by Dr. Franklin S. Newell, and one on "Fractures of the Spine and Pelvis," by Dr. Frederic J. Cotton, of Boston. Dr. George W. Crile of Cleveland, spoke on "Anoci-Association."

FOXBOROUGH STATE HOSPITAL.—The recently published twenty-second annual report of the trustees of the Foxborough State Hospital, administering also the Norfolk State Hospital, records the work and progress of these two institutions for the year ended Nov. 30, 1913. During this period the total number of inebriate patients under treatment was 1437, and of insane 237. The out-patient department, during the four years since its establishment, has followed 2261 cases. The new buildings at Norfolk were completed and ready for occupancy on Jan. 1, 1914. Among the urgent present needs of the institution is an appropriation to enable the foundation of a farm-colony for the treatment of women inebriates.

WORCESTER CITY HOSPITAL.—The recently published forty-third annual report of the trustees of the Worcester (Mass.) City Hospital records the work and progress of that institution for the year ended Nov. 30, 1913. During this period 5390 patients were treated in the wards, 23,278 treatments were given in the out-patient

department, and 1069 in the accident room. From the training-school 32 nurses were graduated. New buildings are in progress of construction for the children's ward and the nurses' home.

OFFICE OF VITAL STATISTICIAN RESTORED IN BOSTON.—In a recent issue of the JOURNAL we noted the abolition by Mayor Curley of the office of vital statistician in Boston. As a result of numerous protests, this order has been rescinded, and Dr. William H. Davis will continue to hold the position.

SCARLET FEVER AT BEDFORD.—Report from Bedford, Mass., states that 15 cases of scarlet fever have occurred in that town during the past six weeks, and that the local public schools have been ordered closed for ten days to prevent further spread of the infection.

SMALLPOX CASE IN AMESBURY.—Report from Amesbury, Mass., states that a case of smallpox was discovered in that town on April 30. The patient, who had been on a recent visit to Boston, has been quarantined, and all contacts have been vaccinated.

A LIVING CENTENARIAN.—Ralph Butler, of Dorchester, Mass., is said to have been born on May 5, 1813.

A PROLIFIC CENTENARIAN SLAVE. — Mrs. Thomas Spence, a negress who died recently in Boston, is said to have been born in 1801 at Camden, Me. She was sold into slavery, and all of her sixteen children, three of whom survive her, were born slaves. She was twice married.

WOMEN IN FOREIGN MEDICAL WORK.—The annual meeting of the Women's Medical Association for Aiding Women in Medical Work in Foreign Countries was held last week in Boston. The principal speaker was Dr. Katharine B. Scott, who has been working for several years in Madura, India. The following officers were elected: President, Dr. Emily R. Howard; first vice-president, Dr. Elizabeth E. Ritter; second vice-president, Dr. Blanche A. Denig; secretary, Dr. Marian Coon; treasurer, Dr. Helen I. Woodworth; auditor, Dr. Anna O'Sullivan; chairman of China work, Dr. Frances Morris; of India work, Dr. Alice H. Bigelow.

BROCKTON BOARD OF HEALTH.—The recently published thirty-second annual report of the department of public health of Brockton, Mass., records the activities of that body for the calendar year 1913. During this period the death-rate was only 10.88 and the birth-rate 36.23. The usual tables and departmental reports are appended.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending May 5, 1914: Diphtheria, 24; scarlatina, 93, of which 18 were non-residents; typhoid fever, 3; measles, 88, of which 2 were non-residents; tuberculosis, 58, of which 2 were non-residents.

The death-rate of the reported deaths for the week was 15.49.

NEW YORK.

AMERICAN ASSOCIATION OF MEDICAL JURISPRUDENCE.—The annual meeting of the American Association of Medical Jurisprudence was held at the New York Academy of Medicine on May 2, and among the questions discussed were the sterilization of mental defectives and medical experimentation upon condemned murderers. Dr. Charles A. Boston, a prominent member of the New York Bar, was elected president; succeeding Dr. Reynold Webb Wilcox, the first president of the association. San Francisco was selected as the place for holding the next annual meeting.

NEW CANCER HOSPITAL.—It is announced that arrangements have been effected for the control by the Cornell University Medical College of the largest cancer hospital in this country. The buildings for this are those of the General Memorial Hospital, at 105th and 106th Streets and Central Park West, an institution which was originally intended for the treatment of cancer. A fund of over $1,000,000 has already been secured, and $500,000 of this is stated to have been contributed by Dr. James Douglas, head of the house of Phelps, Dodge and Company, through whom also the hospital will receive a large supply of radium.

RESIGNATIONS AT COLUMBIA.—At the monthly meeting of the trustees of Columbia University, on May 4, the resignations were accepted of Prof. F. J. Goodnow, who has been made president of Johns Hopkins University; Dr. Theodore C. Janeway, Bard professor of the practice

of medicine; and Frederick Peterson, professor of psychiatry. Dr. J. Ramsay Hunt having resigned the professorship of neurology, Dr. Frederick Tilney, now associate in anatomy, was appointed to succeed him in that position. Among the gifts announced at the meeting was one of $500 from H. E. Sargent of Chicago for research work in anthropology.

RESULTS OF FRIEDMANN TREATMENT.—Health Commissioner Goldwater has published in the department's *Weekly Bulletin* a report of an investigation of the cases of tuberculosis treated in New York by the Friedmann remedy, showing the entire failure of the treatment. Of the total of 77 patients, 19 could not be found, while 11 were reported to have removed from the city permanently, so that nothing could be learned of their condition. The department was, therefore, able to obtain reports on but 47 of the 77 cases. The reports are summarized as follows: At home, 5; in hospitals (indicating failure to cure), 22; attending clinics (showing need of further treatment), 7; attended by private physician, 1; died, 12. The report concludes with the words, "Comment is unnecessary; the figures tell their own story."

DEATH-RATE FOR THE WEEK ENDED MAY 2.—There were 1593 deaths and a death-rate of 14.89 per 1000 of the population reported during the past week, as against 1532 deaths and a rate of 14.88 for the corresponding week of 1913, an absolute increase of 61 deaths, and an increase in the rate of .01, which is equivalent to a relative increase of 1 death. The causes which showed a decreased mortality were diphtheria and croup, cerebral spinal meningitis, organic heart disease, pneumonia, tuberculous diseases other than pulmonary, Bright's disease and nephritis, and deaths from violence. The causes showing an increased mortality were measles, scarlet fever, whooping cough, typhoid fever, diarrheal diseases under five years and pulmonary tuberculosis.

Viewed from the point of age grouping, the mortality of infants under one year of age was approximately the same, while that between one and five years of age was considerably below that of the corresponding week of 1913. The mortality between five and sixty-five years of age showed very little change over the figures of 1913, while that of the age over sixty-five years a considerably increased mortality was recorded.

The borough of Richmond showed the highest death-rate for the week, due to the presence of several large institutions, the inmates of which come from other parts of the country, and to the unfavorable age distribution of the population. The next highest rate was found in the borough of Manhattan, followed by the borough of Brooklyn, borough of The Bronx, and the lowest mortality being recorded in the borough of Queens.

The death-rate for the first eighteen weeks of 1914 was 15.43 per 1000 of the population as against a rate of 15.63 during the corresponding period of 1913, a decrease of .20 of a point.

Current Literature

MEDICAL RECORD.

APRIL 25, 1914.

1. MENDEL, L. B. *The Nutritive Significance of Different Kinds of Foodstuffs.*
2. LUSK, G. *Food from the Standpoint of Energy.*
3. BERKELEY, W. N. *Results of Three Years' Clinical Work with a New Anti-serum for Cancer.*
4. BRADFORD, S. S. *The Rôle of Exercise in the Treatment of Visceroptosis, with Special Reference to the System of W. Curtis Adams.*
5. MAYS, T. J. *Has the Tuberculosis Death-Rate Declined Recently?*
6. KNOX, H. A. *A Comparative Study of the Imaginative Powers in Mental Defectives.*
7. SITTENFIELD, M. J. *Recent Advances in the Study of the Pathogenesis of Cancer.*
8. ROBINSON, B. *The Value of Accurate Diagnosis in Disease.*
9. *BOEHME, G. F., JR. *"Tango-Foot."*

9. Under the name "tango-foot," Boehme describes a condition which he has observed frequently of late and which he ascribes to the extraordinary flexibility of the ankle which the new dancing requires. The strain comes especially on the tibialis anticus, the extensor communis digitorum, and the extensor proprius hallucis, and the result is a teno-synovitis of this muscle group. The symptoms are stiffness of the ankle joint and pain along the outer anterior aspect of the lower third of the leg. Abstinence from dancing is often sufficient treatment, but complete rest of the foot may be necessary. Counter-irritation and baking give relief in severe cases. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

APRIL 25, 1914.

1. RUHRAH, J. *The Prophylaxis of Measles.*
2. PORTER, W. H. *The Value of Cocaine in Disturbances of Metabolism.*
3. BOSTON, L. N. *Private Cases of Diabetes and Glycosuria Treated in* 1913.
4. KENNEDY, J. W. *The Surgeon as the Autocrat of the Operating Room.*
5. BARTHOLOW, P. *Medical Testimony and Legal Supervision.*

6. Crothers, T. D. *The Effects of Alcohol and Tobacco on Life Expectancy.*
7. Baketel, H. S. *The Army Medical Corps.*
8. Brill, A. A. *The Psychopathology of the New Dances.*
9. Stimson, C. M. *A Magnetized Needle Holder.*
10. Pabst, C. F. *Dangerous Medical Legislation.*
11. Carrel, A. *The Transplantation of Organs.*

The Journal of the American Medical Association.

April 25, 1914.

1. Tyson, J. *Inflammation of the Gall-Bladder. Its Causes, Symptoms and Results.*
2. Mosher, C. D. *A Physiologic Treatment of Congestive Dysmenorrhea and Kindred Disorders Associated with the Menstrual Function. Third Note.*
3. Strouse, S., and Beifeld, A. H. *A Case of So-called "Renal Diabetes" Possibly Traumatic in Origin.*
4. *Pfahler, G. E. *The Roentgen Rays in the Diagnosis of Gall-Stones and Cholecystitis. An Improvement in Technic.*
5. Phillips, W. G., Jr. *The Absorption and Tensile Strength of Certain Absorbable Animal Ligatures. A Preliminary Report.*
6. Kleiner, S. B. *A Clinical Method for the Rapid Estimation of the Quantity of Dextrose in Urine.*
7. Smithies, F. *A New Fluoroscopic Sign for the Differentiation of Pyloric Spasm of Extragastric Origin from That Associated with Uncomplicated Gastric Ulcer on or Near the Lesser Curvature.*
8. *Block, F. B. *The Effect of Operation on Kidney Excretion as Indicated by the Phenolsulphonephthalein Test.*
9. *Pardee, H. E. B. *Form of the Electrocardiogram. Diagnostic Significance of Its Variations.*
10. *Davis, G. G. *Roentgen Ray as a Diagnostic Measure in Tuberculous Lymphadenitis.*
11. Sutton, R. L. *An Extensive Case of Plantar Warts.*
12. Truesdale, P. E. *Cancer of the Splenic Flexure.*
13. Hitchings, F. W., and Sloan, H. G. *Appendicitis Following Ingestion of Shot for "Cuban Itch."*

4. Pfahler states that gall-stones can be shown by x-ray only when they are composed of a substance of greater or less density than the surrounding tissues. This will usually mean that they must contain some lime salts, though the quantity may be small. The author's records show positive findings in 74%, but in general not more than 50% can be counted on being positive.

8. Block finds that the effect of ether anesthesia on healthy kidneys is practically nil so far as reducing the excretory power of these organs is concerned. Traces of albumen before operation should not give much concern, but larger amounts should cause concern if accompanied by casts. The duration of anesthesia in any given case does not in itself signify the amount of injury which the kidneys will sustain. The position of the patient on the table, the character of the operation and the administration of proctoclysis have not shown any effect on the percentage of phenol-sulphonephthalein excretion after as compared with that before operation. In one-third of the cases there is increased excretion after operation.

9. Pardee's article on the use of the electrocardiogram is of value and interest.

10. Davis finds that roentgenoscopy is valuable in making a differential diagnosis of enlargement of cervical lymph nodes. This is possible only when tuberculous nodes have become necrotic and caseous and calcification later takes place. It is the calcium salt which shows in the x-ray. [E. H. R.]

The Lancet.

April 11, 1914.

1. Jones, F. W. *The Arris and Gale Lectures on the Morphology of the External Genitalia of the Mammals.*
2. Dreyer, G., and Walker, E. W. A. *An Analysis of the Problem of the Minimal Lethal Dose and Its Relationship to the Time Factor.*
3. Glynn, E. E., Rees, A. A., Powell, M., and Cox, G. L. *Improved Methods of Standardizing Bacterial Vaccines in Hemocytometer Chambers.*
4. *Thiele, F. H., and Embleton, D. *A Method of Increasing the Accuracy and Delicacy of the Wassermann Reaction.*
5. West, S. *Notes on Diabetic Retinitis.*
6. Howard, H. C. *The Therapeutic Value of the Potato.*
7. Brock, B. G. *The Mortality on the Rand: Some of Its Causes.*

4. The writers describe a method for performing the Wassermann reaction which they believe to be simple, quick, and absolutely controlled. This may prove of interest to those engaged in this special work. [J. B. H.]

The Indian Medical Gazette.

April, 1914.

1. *Neve, A. *The Surgery of Tubercular Glands.*
2. Ewens, G. F. W. *Insanity from Exhaustion.*
3. Berkeley-Hill, O. *A Short Analysis of Eighty-Nine Cases of Epilepsy in the Punjab Lunatic Asylum.*
4. Haughton, S. *The Prophylaxis and Treatment of Pre-Eclamptic Toxemia and Eclampsia.*
5. Bradfield, E. W. C. *Anoci-Association and Cancer of the Cheek.*
6. Hingston, C. A. F. *An Analysis of Seventy-Seven Cases of Placenta Previa at the Government Maternity Hospital, Madras.*
7. Newman, E. A. R. *A Bismuth Paste Injector.*
8. Pratt, D. E. *Two Cases of Abdominal Tumors with Curious Complications.*
9. Roberts, J. M. *Zinc Rod in the Uterus.*

1. Neve's report is based on the history of 800 operations in the Kashmir Mission Hospital. Of these 75% were cured, 15% improved, and 10% had sinuses or recurrence. The author believes in the efficacy of this method of treatment rather than in the use of tuberculin injections. [R. M. G.]

British Medical Journal.

April 11, 1914.

1. *Thomson, St. C. *Three Years' Sanatorium Experience of Laryngeal Tuberculosis.*
2. *Wilkinson, W. C. *Tuberculin Treatment as the Essential Method of Dispensing Sanatorium Benefit.*
3. Sahli, H. *A Contribution to the Critical Study of Therapeutic Statistics.*
4. *Renton, J. M. *Some Observations on Tuberculosis of the Kidney.*
5. *Neve, A. *The Surgery of Tuberculous Glands.*
6. Champtaloup, S. T. *Multiple Subcutaneous Tuberculosis Following Circumcision and Treated by Tuberculin.*
7. Jessel, G. *The Possibilities of Domiciliary Treatment in Phthisis.*

1. Thomson, in an interesting and valuable paper, finds the larynx involved in 25.6% of selected sanatorium cases; a considerable number, however,

showed *no active lesions*. This occurs much more frequently in early cases than is generally supposed. The prognosis is much worse with such a complication. There may be no symptoms of laryngeal trouble and therefore the larynx should be inspected in every case. Improvement of lung and larynx generally go on together, but rarely the larynx gets better while the lung gets worse. Arrest of this condition can be effected in 20.7% of all cases. The galvano-cautery is the best method of treatment locally, but sanatorium treatment is by far the best in all cases; local measures are far more promising in such instances.

2. This is a typical article by this well known ardent believer in tuberculin in phthisis. As usual, he reports remarkable cures of advanced cases of consumption under tuberculin and dispensary treatment. His claims are too remarkable to be taken at their face value, but in England at least, his ideas seem to be slowly but surely gaining credence. The article is of distinct interest.

4. This is a short paper based on five cases with valuable reference to the work of others on the subject. While nothing new is presented, the article is of value.

5. Neve bases his work on the surgery of tuberculous glands in 800 cases operated on in Kashmir, India; 75% were cured, but of these in 10% a recurrence might be expected. (This 10% is probably too low a figure.—J. B. H.) He emphasizes preliminary treatment of teeth, tonsils, ears, etc. In this class of patients radical measures are needed in order to keep control of the patients. Considering the class of patients, his results are remarkably good. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

APRIL, 1914.

1. *ROSS, T. A. *The Nature and Treatment of Neurasthenia.*
2. *MITCHELL, A. P. *The Milk Question in Edinburgh.*
3. *MCNEIL, C. *Scrofula or Hypersensitiveness to Tuberculous Infection.*
4. *BARCROFT, D. M. *Modern Treatment of Consumption.*
5. *WATSON, D. C. *Manifestations and Treatment of Intestinal Toxemia.*

1. This is a long and practical article on the treatment of neurasthenia and its nature. Ross discusses its symptoms, mental and physical, the need of a careful history, going deeply into underlying causes and the need of getting the patient's confidence. He discusses the work of Dubois and Mitchell and others and then goes into details of treatment, rest in bed, diet, massage, baths.

2. This article is a striking account of the milk situation in Edinburgh with valuable suggestions as to prevention of tuberculosis among cattle, and how to procure a supply of clean milk, butter, etc. He is an ardent advocate of the sterilization of milk and believes that the danger of infantile rickets and scurvy has been greatly exaggerated.

3. In this paper McNeil attempts, but without success, to describe scrofula as a definite clinical entity. He discusses the clinical features, which are simply those of the weak, poorly-nourished and tuberculous child, and evidently believes in the old saying (which has done much harm) that scrofulous children later on rarely develop pulmonary tuberculosis. According to him scrofula is something more than a variety of tuberculous infection and is allied to the status lymphaticus. (The reviewer is strongly of the opinion that such discussion as this are utterly futile.—J. B. H.)

4. Barcroft urges individualizing in each case of phthisis as to treatment. Tuberculin in experienced hands is of great value. Artificial pneumothorax is beyond the scope of general practitioners. Intensive iodine treatment is still on trial. The sanatorium is of value and particularly as an educative agent.

5. In the treatment of intestinal toxemia, Watson discusses rest, diet in great detail, treatment of the bowels, stimulation of renal excretions, hydrotherapy, massage and exercise, and vaccines. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 14. APRIL 7, 1914.

1. STÜHMER, A. *Salvarsanized Serum.*
2. *ESKUCHEN, K. *The Treatment of Cerebro-spinal Lues According to Swift and Ellis.*
3. PONNDORF. *The Cure of Tuberculosis.*
4. KAHLE, H. *Silicic Acid Metabolism in Cancer and Tuberculosis, and Its Significance in the Treatment of Tuberculosis.*
5. RÖSSLE, R. *The Silicium Treatment of Tuberculosis.*
6. PRINGSHEIM. *The Diagnostic and Prognostic Value of Repeated Local Tuberculin Reactions in Adults.*
7. STUMPF, J. *The Prophylaxis and Treatment of Cholera from Personal Experience in Belgrade.*
8. LÖFFLER, C. *The Liver and Spleen in X-ray Plates.*
9. ABDERHALDEN, E., AND FODOR, A. *Further Investigations on Proteolytic Ferments in the Blood of Pregnant Women. Studies on the Dialysate by Ninhydrin and Estimation of Its Nitrogen Content by Micro-analysis.*
10. ABDERHALDEN, E., AND GRIGORESCU, L. *Biological Tests with the Dialysis Method.*
11. SCHIFF, E. *The Value of Abderhalden's Reaction in the Diagnosis of Pregnancy.*
12. SCHUBERT, M. E. *The Treatment of Furunculosis in Infants with the Thermo-cautery.*
13. *OBMANN, K. *A Case of Generalized Vaccinia with Eczema Capitis.*
14. MENDL, J. *The Diagnosis of Cerebral Hemorrhage.*
15. WIESEL. *Cymarin, a New Heart Tonic.*
16. ALTER. *The Toxicity of Salvarsan.*
17. GANS, O. *The Technic of Bleeding and Intravenous Infusions.*
18. OELLER, H., AND STEPHAN, R. *Clinical Studies with Abderhalden's Dialysis Method.*

2. Eskuchen has given the Swift-Ellis intraspinous salvarsan treatment in nine cases of tabes, in two of cerebro-spinal lues, and in five cases of dementia paralytica. Eskuchen concludes that by this form of treatment, the pleocytosis of the cerebro-spinal fluid was diminished rapidly, the Wassermann reaction was but slightly weakened, and that the colloidal gold test remained unchanged. Subjectively, various symptoms were quickly and markedly bettered and the progression of the disease was arrested.

13. Obmann reports the case of a child who developed fever and a generalized eruption after vaccination. In the rare similar cases which have been reported, there has been discussion as to whether this complication was due to auto-inoculation or to a general infection. Obmann believes that in his case a general infection took place, since the eruption developed in areas where auto-infection seemed impossible, and because the patient showed such symptoms of a systemic disturbance as high fever, an enlarged spleen, leucocytosis with relative lymphocytosis and inflammation of the mucous membanes of the nose and mouth. [R. F.]

Berliner Klinische Wochenschrift.

No. 8. February 23, 1914.

1. *Moro, E. *Concerning the Recurrent Umbilical Colic in Older Children.*
2. *Friedjung, J. K. *The So-called Recurrent Umbilical Colic of Children.*
3. Rosenthal, F. *Impressions of an Expedition to Bulgaria, with a Contribution to the Diagnosis and Treatment of Asiatic Cholera.*
4. Zypkin, S. M. *The Treatment of Cirrhosis of the Liver with Keratin.*
5. Rautenberg, E. *Miliary Tuberculosis and Bacillaemia.*
6. Friedemann, M., and Schönfeld, A. *On the Theory of the Abderhalden Reaction.*
7. Schultz, F. C. R. *A Contribution on Serum Sickness.*
8. Engel, C. S. *A Demonstration of Colored Photomicrographs (Lumière) Showing the Development of Blood Cells.*
9. Hofmann, W. *On Leaving the Bed Early after Operation.*
10. Jüngerich, W. *Acetone in the Treatment of Proctitis.*
11. Fränkel, E. *The Use of the Abderhalden Test in Carcinoma and Tuberculosis.*

1. Moro's original article, describing a "recurrent umbilical colic" in children, of a more or less neurotic etiology and curable by medical and suggestive therapeutics, was recently refuted by Küttner, who reported several such cases, all of which, he claims, were cured by appendectomy. In an answer to Küttner's statements, Moro reasserts his former opinions which are briefly as follows: Children are subject to these attacks; (1) the pain occurs with great regularity in the region of the umbilicus; (2) the attacks are always without fever and recur often; (3) the patients are usually hypersensitive, of a sort of angioneurotic nature, and have usually been improperly trained and brought up; and (4) they can be cured by dietetic and pedagogic reforms, together with suggestion.

2. This is another article on the above subject contradicting Küttner's statement that the appendix is the cause of this so-called umbilical colic. Friedjung had, even before Moro, described some years ago in an exhaustive article an hysteric or neuropathologic condition in childhood which manifested itself in this way. He says that the appendix is not at fault, and that he has been able to cure them with such treatment as tincture of valerian and suggestion, as thoroughly as Küttner has with appendectomy.

[R. H. M.]

Obituary.

THOMAS DRUSLYN GRIFFITHS, M.D., LOND., D.Sc. OXON.

Dr. Thomas Druslyn Griffiths, of Swansea, Wales, who died of pneumonia on April 17, in Bournemouth, England, was born at Hên Plâs, Llan-y-bythyr, Cardiganshire, in 1837. He obtained his preliminary education at the Normal College Swansea, and then was apprenticed for a time to Dr. Michael, a leading practitioner of that city. Later he entered the University of London, where he had a brilliant career as a student, winning medals in anatomy, physiology, and medicine, gold medals in botany and comparative anatomy, the Filliter prize in pathology, and the Atkinson Morley scholarship. In 1862 he received the degree of M.B. with honors in medicine, surgery and midwifery, and in the same year qualified as M.R.C.S. and L. S. A.

In 1863 Dr. Griffiths settled in the practise of his profession at Swansea, where he won an extensive reputation as one of the first exponents in Wales of the new principles of Listerism, and was the first surgeon in that country to aspirate for pleurisy. In 1872 he received from the University of London the degree of M.D. From 1880 to 1885 he served as ophthalmic surgeon to the Swansea General Hospital and was a governor of the University of Aberystwith. He published papers on the pathology and treatment of intestinal wounds, on dermoid ovarian tumors, on the causes and pathology of acquired malpositions of the uterus, and on the treatment of gastric ulcer.

In 1903 Dr. Griffiths was elected president of the British Medical Association, and in 1904 received from Oxford University the honorary degree of D.Sc. He retired in 1913, after fifty years of practice, during which he had been the foremost Welsh surgeon of his day. He is survived by his widow and by several children.

Miscellany.

A COLLECTION OF GREEK SURGICAL INSTRUMENTS.

There has recently been presented to Johns Hopkins University a very valuable set of 37 ancient Greek surgical instruments, originally discovered near the site of Kolophon, in Ionia, and for some time in the possession of the Dutch vice consul at Smyrna. These instruments, now on exhibition in England, prior to being sent to Baltimore, are thus described in a recent issue of the London *Times*.

"The instruments show a type of workmanship unequalled in any other extant specimens and generally reveal the very great progress in surgery which the ancients achieved. The date, though somewhat uncertain, is probably the first or second century A.D.; it is possible, however, that it may have been before the Christian era.

"With two exceptions all the instruments are of bronze. The blades of the knives were originally of steel, but in each case this metal has been almost completely destroyed by oxidation. Among the collection is a large 'beaker,' made of purple glass and decorated. When discovered, it was broken into fragments; these, however, have now been united. The idea entertained is that this was the drinking cup of the physician, or possibly the vessel used for pouring libations at his tomb.

"It is an interesting fact that in ancient times knives were made either of stone or bronze. This custom was followed, not because iron was unknown, but because that metal was held in superstitious fear,—a fear which lingered into the Christian era. According to Plutarch it was actually unlawful to introduce any iron implement into a Greek temple, and no Roman priest might be shaved by an iron razor or iron scissors. Surgical knives however, had steel blades. Nevertheless, even these bore, on the opposite side from the actual blade, a leaflike projection of bronze with two edges,—a survival of the earlier bronze blade, preserved, apparently, for ceremonial reasons. Each of the six knives (or rather knife handles) in the collection shows a groove for the steel blade which it originally possessed. It is probable that, as in modern instances, the shapes of the blades differed considerably to suit different operations.

"Among the five pairs of forceps is a large and beautifully made instrument, the handles of which are shaped to represent two dolphins. This is probably a pair of polypus forceps. The 'bite' of the teeth is strong and close. Another interesting pair of forceps is that used for extracting arrow and lance heads from wounds. This pair somewhat closely resembles modern bone forceps, and has artistically modelled handles and blades which possess strong teeth for gripping.

"An elevator for raising depressed bone is another interesting exhibit. Its presence in the collection would seem to prove that after battle efforts must have been made to treat surgically even the most serious wounds of the skull.

"Another and still more remarkable brain instrument is the drill-bow for operating a skull trephine. This instrument proved a very great puzzle at first, and was supposed to represent some sort of measuring appliance. Research, however, has shown that it is a bow, which, when fitted in a string, was used to rotate a bone drill or skull trephine—very much as drills and trephines are still, occasionally, rotated. The British Museum possesses the only other specimen of the drill-bow extant; until the discovery at Kolophon was made, the nature of that instrument was not known.

"Far from being a triumph of modern surgery, skull trephining or trepanning is a very ancient manoeuvre. Skulls have been discovered again and again showing trephine openings, and the natives of the South Sea Islands are actually known to practise the operation. In classic times this was not undertaken, as at present, to relieve pressure, but to allow exit to the evil spirit supposed to be troubling an insane or epileptic patient.

"The collection also includes a tenaculum, or sharp hook, similar to those in everyday use, a number of catheters of beautiful workmanship and shaped like modern instruments of the same type, a scoop, or curette, for gynecological and other work (Hippocrates speaks of such an instrument), a cautery for burning wounds, a couple of probes exactly like the modern ones, a couple of spatulae or spoons, a needle-holder, and a bronze box intended, evidently, as an instrument case. In addition there is a slab of Egyptian porphyry for mixing ointments upon, and a well-constructed pair of scales, still in excellent equipoise.

"Some cupping vessels were also discovered. The method of using these was to ignite a piece of dry linen placed inside of them and then apply them to the skin. As the heated air within cooled it contracted and sucked the skin into the neck of the cup."

THE MAGGOT TRAP A POSSIBLE SOLUTION OF THE FLY PROBLEM.

A trap to destroy the maggots of the typhoid or housefly before they develop into winged insects, is a possible solution of the fly problem and one that should interest health officers, sanitarians and others who might make use of it on manure heaps, where this common pest breeds. The Department of Agriculture's scientists in their preliminary experiments with such a trap have succeeded in destroying from 70 to 99% of the maggots in a pile of manure. This method of attack differs from those which have been generally used. Fly poisons have been made to tempt the appetite of the adult fly, or fly-tight receptacles have been used to keep the adult female from laying her eggs in manure. The newer method is based on the knowledge of certain habits of the undeveloped fly maggot.

The maggots of the typhoid fly, it has been discovered, have a habit of migrating from their breeding places into drier portions of the manure heap. This seems a distinct move on their part to permit the adult fly to issue from the refuse in the easiest and quickest manner. The efficiency of the new trap is based on the regularity of this deep-seated habit.

The experiments of the department's entomologists showed that with the trap from 98 to 99% of all the maggots in the manure pile were destroyed, if the manure was kept moist. From comparatively dry manure about 70% were destroyed.

These experiments, as yet, have been tried only on a comparatively small scale. The question immediately arises whether the trap, which appears so successful on a small scale can be adapted to the handling of manure in a practical way on a large scale. Every consideration points to the probability that it can and that it will afford "an additional weapon of great value." However, the final verdict as to the value of the maggot trap must wait upon the solution of certain practical problems. To point out some of these here is to suggest lines for further investigation.

ITALIAN DENTISTS AND DENTISTRY.

THE following item from a recent issue of the New York *Times* describes the present status of dentistry and dentists in Italy.

"With general progress and consequent increase in wealth, the practise of modern dentistry is growing throughout Italy. The United States is looked to there, as in all foreign countries, as the alma mater of this profession. The Italian dentist has supplied himself with the latest and best instruments and appliances. All of them prefer American-made supplies, though, by reason of higher cost, American instruments and appliances are not yet general, but the demand is increasing, as few such instruments and appliances are made in Italy.

"Italy has only one school, the Istituto Stomatologico Italiano, in Milan, where dentistry is taught. The laws now regulating the practise of dentistry in Italy were passed in 1912, and they provide that no one shall be permitted to engage in this profession who has not received a diploma in medicine and surgery. Therefore, to matriculate at this school the appplicant must have graduated in medicine and surgery from one of the recognized universities. As the minister of public instruction is authorized by these enactments to establish departments for the study of dentistry in all schools where medicine is taught, Italy may soon have a number of dental colleges. Under these laws any person who, on March 31, 1912, had been engaged in dentistry in Italy for eight years or more, is permitted to continue in the exercise thereof for one year, but is prohibited from doing so thereafter, unless within this year he passes the prescribed examination in dental pathology, anatomy and physiology.

"There were in all Italy in the year 1906 only 750 dentists. This number increased to 1200 in 1912. At Leghorn, with a population of 100,000 inhabitants, there were only four dentists in 1903; now there are twice that number there.

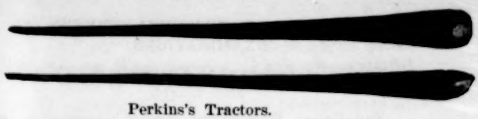
"Dental inspection and treatment is provided free for the children attending the public schools of some of the larger cities. An examination made in the public schools of Leghorn by a local dentist resulted in a report that sixty per cent. of the attending children needed treatment."

Correspondence.

PERKINS'S TRACTORS.

NEW YORK, May 1, 1914.

Mr. Editor: These metallic tractors gave rise to a medical delusion which prevailed in this country and Europe about a hundred years ago. They were used for the relief of pain and disease by Dr. Elisha Perkins (1745-1799), an eminent physician, president for a long time of the Connecticut Medical Society. They were hammered out of iron and brass, flat on one side and half round on the other, and came in pairs,



Perkins's Tractors.

"the white" and "the yellow." The accompanying photo-engraving shows very nearly their size. It was reported that many cures were effected by drawing them over the affected part, and the inventor believed that he had made an important medical discovery. After his death the treatment was widely advertised, and the tractors were sold in large numbers, the price in London in 1802 being five guineas. They gave rise to the poem, "Terrible Tractoration," and also to a number of books discussing at great length the merits of the new treatment. In 1884 four of them were found in the house of my grandfather at Plymouth, Massachusetts, where he was a minister, early in the last century. They had lain undisturbed for many years in a cupboard, and were tied up with old-fashioned hat pins and hair pins. I kept them several years without knowing their significance till I happened to see a pair framed and carefully preserved in the library of the New York Academy of Medicine. It seems desirable to print a picture of these curios as doubtless specimens are to be found in cupboards and bureau drawers of old houses in this country and England. I am told that those first made were stamped with numbers, and that letters patent to Dr. Perkins, signed by President Washington, are held by descendants of the inventor residing at Springfield, Mass.

Yours truly,

A. B. JUDSON, M.D.

MEDICAL JUDGES.

BOSTON, MASS., May 5, 1914.

Mr. Editor: In the issue of the JOURNAL for April 16 you commented on a bill that was before the Senate at Albany, "providing for a medical judge in each county whose duty it shall be to attend any trial at which medical evidence is taken concerning the sanity of a party to an action and give medical advice to court and jury. The medical judge's instructions are to have the same weight as those of a trial judge."

It would seem that such a measure would make for expediency and justice in the trial of cases involving the question of the sanity of the transgressor. The physician-judge, by limiting the technicalities that are so often injected into such trials, would increase the advantageousness of the alienists' expert testimony. The result would be a speedy crystalization of the facts concerning the case followed by a just and humane disposition of same.

Medical judges might sit not only in the above type of case in which there is a question as to whether or no the criminal is feigning insanity to evade due punishment, but he might also sit at commitment cases. At the latter cases his services might be of especial value in detecting cases not suitable for commitment.

I do not wish it inferred that I mean to insinuate that our judges are not men of high moral integrity and of alert and vigilant mentalities, but I do contend that the physician (other requirements such as maturity, age, etc., being equal, of course) by virtue of the pertinent training and experience he has received, is inherently and eminently qualified to do justice to this sort of work.

To be sure, this would be a new field for the physician, but there is not any reason why he would not be superbly successful in it.

Very respectfully and faithfully yours,

GAETANO PRAINO, M.D.

UNITED STATES CIVIL-SERVICE EXAMINATIONS.

TECHNICAL ASSISTANT IN PHARMACOLOGY (MALE).

June 1, 1914.

The United States Civil Service Commission announces an open competitive examination for technical assistant in pharmacology for men only. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the Division of Pharmacology, Hygienic Laboratory, Public-Health Service, at salaries ranging from $1800 to $2000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will consist of research work in pharmacology, including original investigations in the physiological assay of drugs and of the action of drugs by means of the electro-cardiograph.

Applicants should have a reading knowledge of French and German.

An educational training, including a degree of Doctor of Medicine from an institution of recognized standing, and at least two years' subsequent experience in experimental pharmacology and physiology, such experience to have included the study, by means of experimental methods, of the action of drugs, are prerequisites for consideration for this position.

Applicants must have reached their twenty-fifth but not their fortieth birth day on the date of the examination.

Persons who meet the requirements and desire this examination should at once apply for Form 304 and special form to the United States Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Post Office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse, New York N. Y.; New Orleans, La.; Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, including the medical certificate, and filed with the Commission at Washington, with the material required, prior to the hour of closing business on June 1, 1914. In applying for this examination the exact title as given at the head of this announcement should be used.

DENTAL INTERNE (MALE).

June 3, 1914.

The United States Civil Service Commission announces an open competitive examination for dental interne, for men only, on June 3, 1914. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position, at $600 per annum, with maintenance, in the Government Hospital for the Insane, Washington, D. C., and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The department states that it reserves the right to terminate the appointment at the expiration of one year of service if it is deemed advisable to do so.

In addition to many interesting cases presented, the dental interne is given an excellent opportunity for study and for doing experimental and research work in the pathological, histological, and other laboratories of the institution.

Applicants are required to be graduates or senior students or regularly incorporated dental colleges, and applications will not be accepted from persons who have been graduates for more than two years. The names of senior students will not be certified for appointment until they have furnished proof of actual graduation.

Applicants must be unmarried.

Persons who meet the requirements and desire this examinations should at once apply for Form 1312 to the United States Civil Service Commission, Washington, D. C. No application will be accepted unless properly executed, including the medical certificate, and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant. In applying for this examination the exact title given at the head of this announcement should be used.

NOTICES.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER.

Under the auspices of the Boston City Federation, the American Society for the Control of Cancer will conduct a meeting at Huntington Hall, 491 Boylston Street, on Tuesday, May 19, at 3 p. m.

PROGRAM OF MEETING.

Subject: "The Prevention and Control of Cancer." Addresses by:

Mr. F. L. Hoffman, Newark, N. J., Statistician, Prudential Life Insurance Co., "Prevalence and Increase of Cancer in the United States."

Dr. F. S. Simpson, Pittsburgh, Pa., Alleghany General Hospital, "Work and Purposes of the A. S. C. C."

Dr. J. C. Warren, Boston, President of the Harvard Cancer Commission, "Education of the Public on the Cancer Problem."

SYMPOSIUM.

What the Public should know about Cancer in order to avoid its suffering and mortality:

About "Cancer of the Digestive Organs," Dr. S. J. Mixter, Surgeon, Massachusetts General Hospital.

About "Cancer of the Breast," Dr. W. W. Chipman, Surgeon, Royal Victoria Hospital, Montreal.

About "Uterine Cancer," Dr. H. C. Taylor, Surgeon to the Roosevelt Hospital, N. Y., Chairman, Publicity Commission, A. S. C. C.

About "External Cancer," Dr. David Cheever, Surgeon to the Peter Bent Brigham Hospital.

Closing remarkes by the Rev. George A. Gordon.

RECENT DEATHS.

DR. NEWTON F. CURTIS, who died recently at Milton, Mass., was born in Camden, Me., on July 13, 1849. He graduated from Bowdoin College in 1871, and in 1873 from the New York College of Physicians and Surgeons. He immediately began the practise of his profession at White Plains, N. Y. He had lived at Milton since his retirement in 1910. He was a member of several New York Medical societies. He is survived by one daughter and by one son.

DR. PAUL EHRHARDT, of New York, died on April 30, in his 59th year. He was a native of Pennsylvania, and was graduated from the medical department of New York University in 1878. He practised first at Lauden, Iowa, and in 1883 removed to New York.

DR. EUGENE F. PEARCE, of Brooklyn, N. Y., died on April 30, in his 56th year. He received his academic education at New York University, and was graduated from the Long Island Medical College in 1883.

DR. JOHN MACCONNELL, who died recently in Boston, was born at Belfast, Ireland, in 1839. After graduating from Trinity College Medical School, Dublin, he migrated to Boston in 1868. In 1872 he became superintendent of the local smallpox hospital, and later was transferred to the board of health, where he became its first vital statistician.

Original Articles.

FEEBLE-MINDEDNESS AS A LEADING SOCIAL PROBLEM.*

By E. E. Southard, M.D., Boston,

Director, Psychopathic Hospital, Boston; Pathologist, State Board of Insanity, Massachusetts; and Bullard Professor of Neuropathology, Harvard Medical School, Boston, Mass.

Should I declare that the problem of the feeble-minded is the largest single practical problem before Massachusetts at the present day, you might be disposed to wonder how practical a person I might be. Is not insanity a larger problem? Or alcoholism? Or syphilis? Or even that narrow circle of diseases dealt with by boards of health, the so-called public health problem? Are not crime, graft, undesirable immigration, illiteracy larger problems? What also of the high cost of living, classes *versus* masses, anarchistic socialism? On still broader planes, one might pause to contemplate the lowering of moral standards, and the decay of religious thinking by the people at large. What chance has the problem of the feeble-minded with such problems as these and countless other problems of civilization?

Perhaps I may justify my declaration, which smacks at first of such superlatives as are sometimes fed to legislative committees, as follows: By "problem" I do not mean an unsolvable problem or a set of conditions working out in *saecula saeculorum*, so that, if there be a problem, it would require philosophical or even divine wisdom to solve. By problem I mean something concrete, finite, practical, a set of conditions whose dimensions and quality are known or can shortly be known, for us in Massachusetts as well as for the angels in the sky. A problem, as I somewhat narrowly use the term, means a problem for solution, a problem that can by human means be solved.

Insanity is a larger problem financially, perhaps, than feeble-mindedness. Within ten years or much less time, we shall know the comparative costs of the insane and the feeble-minded. Yet the facts of mental disease are of infinite complication beside those of feeble-mindedness. The problems, so-called, of paranoia, of Booth, of Guiteau, of Czolgosz, of Schrank; or the problems of genius and psychopathic states, of Mohammed say, or of Rousseau, or of Nietzsche, or of Roosevelt,—these problems are not to my mind as yet problems; the would-be solvers of such problems cannot agree even on definitions. We may put away as many psychopaths as we like here in Massachusetts; is any one so skilful as to catch up them all as they pass? So much of the insanity-field as, in the present state of knowledge, can be regarded as a problem is either solved or is on the road to solution shortly. Shortly we may say perhaps, as I was told in the Berlin district in Prussia, "There are beds enough for the insane; the numerical question is settled, at least for the present output of insane about Berlin." We may, it is true, need more psychopathic hospitals, that is, clearing-houses where the diagnosis can be made days earlier than by former methods and to which patients will be brought so that diagnoses can be officially made months earlier than was formerly the case. We may need sanatoria for mental cases, where people who can pay less than $25.00 a week can be safely brought through their early attacks or through conditions falling short of frank insanity. We may need extensive developments of the colony system for the able-bodied insane and of the family-care system for the harmless insane. Yet most, if not all, of these developments are officially under way and in a state to be appreciated and furthered by the interested public, that is, by the social workers. That is to say, as I see it, what the state can do has been done or is about to be done for the insane; we must now wait for science to make for us new practical issues, real problems, such as seem to be coming in the science of the nervous system at about the rate of one in five years.

You will readily see how I should logically dispose of such so-called problems as those of alcoholism and syphilis. Much of each so-called problem is in no condition for practical effort. We can readily calculate the cost and human effects of alcohol and syphilis. We lightly say they are preventive problems. But who has anything concrete and universally convincing about ways to head off the desire to get drunk and the desire for sexual intercourse when that desire has no justification in morals, art, or even pride? To be sure, the alcohol problem is being approached on its reform aspect, and a clearing-house for all alcoholics with a follow-up system for each case has been dreamed of. Yet the psychological problems lodging therein, as well as those surrounding the sex instinct, are in no condition for public propaganda. Preaching against alcohol and sex indulgence is in my experience often pointless. Drunkards, prostitutes, and their associates may present a dire "condition"; they do not promise to yield a "theory" for many years.

Those partial aspects, then, of the huge complexes of conditions which I have mentioned (alcoholism, syphilis, tuberculosis, and typhoid fever, in the public health field, crime, etc.), which have been really and seriously reduced to the simplicity of "problems" are either tolerably well met or do not in my opinion meas-

* Psychopathic Hospital Contribution, 1914.4, being contributions from the Psychopathic Hospital, Boston, No. 38. The previous contribution 1914.3 was by Dr. H. R. Stedman, entitled "The Art of Companionship in Mental Nursing," published in the Boston Med. and Surg. Jour., Vol. clxx, No. 18, April 30, 1914, p. 673. The present communication was read at Haverhill before the Annual Massachusetts Conference on Charities and Correction, in October, 1912.

ure up to the size of the feeble-mindedness problem. So far as insanity is understood, Massachusetts has met or is about to meet the problem well. The same may be said of alcoholism and of crime in general. The psychology of the alcoholic, the sex offender, the criminal, hardly presents the aspect of a problem. It is the same with precisely that portion of insanity that interests us most. Was Mohammed an insane epileptic? Doubtless the Mohammedans are the better for their belief in God which Mohammed drove in. Was Rousseau a madman? With more like him, education would present more real problems. Was *Also Sprach Zarathustra* indirectly an outcome of syphilis? With more Nietzsches, much more good German would have been written A melodramatic thrill runs down our backs when somebody says Roosevelt is crazy, but only on the erroneous hypothesis that "crazy" means he should be locked up. If crazy means genius, and really means it, if we knew enough about genius to say that it is a form of insanity and really think so, then to call Roosevelt crazy would be campaign ammunition for Roosevelt.

As a fact, the psychology of alcoholism, of the sexes, of crime, of genius, of many borderland and complex types of insanity is so far virtually devoid of problems in the perhaps narrowly social and practical sense in which I have applied the term.

The problem of the feeble-minded is a practical one for us for many reasons.

In the first place, our social sense concerning feeble-mindedness has been aroused. We look sharply at each other nowadays to see if we are not in some degree feeble-minded. To be a moron or high grade feeble-minded person is getting to be as common as having a Darwinian tubercle on one's ear. We look suspiciously at persons of other races and religions to see if they be not feeble-minded. Our friends even are thought often to be contracting imbecile marriages. I often excuse myself for social errors by considering that such and such factors have been left out of my composition. Even officials are interrupted in their conservative tasks by eager social workers who want something done with this or that person who ten years ago would never have been termed—with safety—an imbecile.

With this arousal of our social sense concerning the true range of feeble-mindeness has come a certain pessimism. Are we not all a little weak as well as a little queer? Are we not all fit subjects in some sense for commitment to a school for the feeble-minded, if not for commitment to a hospital for the insane? Where shall the line be drawn?

As a matter of fact, our laws concerning the commitment of the feeble-minded as concerning the commitment of the insane are effective enough. As with the insane, so with the feeble-minded, the present problems no longer touch those legal processes involving judges. Little or no doubt attaches to cases suitable for commitment by the court.

More doubt attaches to the proper fate of those considered by some as suitable, by others as not suitable, for admission to institutions without court process. The line of distinction roughly runs between custodial cases adjudged by a court suitable for commitment and what might be termed educational cases which the institution sees fit to receive as mentally deficient.

The ground for optimism here is the popularization of the Binet-Simon tests which, combined with common sense and some medical knowledge, make it possible for a comparatively inexperienced examiner to do in a short time what formerly depended on the teacher's trial and error. The intellectual educability within well-defined limits can now be safely declared for a given case by scores of workers,—scores as compared with a handful twenty years ago.

But intellect is not all. Will tests and tests for capacity to do things remain to be placed on the same plane with the Binet-Simon intellectual tests? Here is where inexperience in the examiner counts and where the off-hand Binet-Simon diagnosis of the psychologist and social worker meets shipwreck at the institution. Aside, however, from the complex and high-grade cases, where will disorder and criminal tendencies enter, the popularization of the new tests has rendered much more easily possible the winnowing of cases for the new beds which the legislature has granted and will surely continue to grant.

Psychopathic hospitals and out-patient departments, which naturally go therewith—it is a question whether every great district hospital for the insane should not support an out-patient department for these and other appropriate cases—will aid extensively in the solution of the problem along the lines of the out-patient department conducted at Waverley for many years. Already, before its formal opening, the out-patient department of the Psychopathic Hospital in Boston had had a large number of such cases brought for diagnosis—a majority, in fact, of all out-patient cases there.

What is the size of the problem? A conservative estimate in 1911 stood at 6,700. A special study now being made by Dr. William Noyes*

* A sample of Dr. Wm. Noyes' work done under the State Board of Insanity has been published in the Fourteenth Annual Report of that Board, being Document No. 63. A summary is as follows:

KNOWN FEEBLE-MINDED IN MASSACHUSETTS.

By present census:		
Males		2640
Females		2367
		5007
Reported by overseers of the poor		245
Total not in institutions		5252
In School for the Feeble-minded (at Waltham)	1497	
In Wrentham School	418	
	1915	
In State hospitals and asylums	672	
Total in institutions		2587
Total in State in feeble-minded status		7839

under the Board of Insanity, taking account of undoubted cases (so as not to cloud the issue with mental and criminalistic cases), has not approached this number as yet, but over a third of the number have been found almost at the outset by carefully guarded inquiries.

The result of such inquiries is at first sight pessimistic. I get the impression that the majority of people regard feeble-mindedness as a necessary affliction of society, classing feeble-mindedness in this respect with poverty and crime.

I have to observe in this direction that, whereas a certain minimum of feeble-mindedness may be constantly found in different societies, there is much to be said that the problem is in large part a preventive one.

I have myself of late spent much time upon the geographical distribution of degeneracy and defectiveness in Massachusetts and have to report a surprising *chiaroscuro* in that distribution. I cannot as yet assign definite values to the correlations being studied. It seems, however, that the movement of insanity and other forms of mental defect corresponds rather with the movement of physical disease than with that of crime and pauperism. The mental problems as a whole appear to be rather medical matters, to be attacked by a philosophy of prevention. The crime-pauperism complex statistically appears rather more an economic matter. There is probably a middle ground where feeble-mindedness especially approaches criminalism and where a change of economic status might be the reverse of an aid to society. Mayhap all these tentative conclusions of statistical study will be overthrown.

I should suppose, however, that statistics as a whole and the special kind of analytical statistics known as eugenics has gone far enough to prove that the social philosophy of prevention has wide scope.

To be sure, studies in Massachusetts seem to show that many a case of feeble-mindedness is due in some sense to encephalitis, congenital syphilis, or meningitis in the childhood of the case, so that the particular warnings of eugenics have not a universal scope. Still the practical problems remain preventive. It is probable that there is an interplay of hereditary and somatic factors at work in many cases, not yet sufficiently studied.

What the eugenics workers have abundantly demonstrated is the old law of assortative mating. Part of the statistical *chiaroscuro*, which shows far more defectives in some places than in others is doubtless due to such assortative mating, combined with the propinquity entailed by barriers.

Society, therefore, can readily find out statistically where to work; it can start such preventive mechanisms at work as the somewhat threadbare experiences of public health workers afford; it can thwart assortative mating of the unfit; it can educate; it can transplant; it has means of determining which persons belong undoubtedly in institutions (whatever doubt may rage in criminalistic cases); it knows where to study further; it sees a sufficiently large, if not the largest single, practical problem before it.

I will sum up and conclude as follows:—

1. The status of the feeble-minded in Massachusetts is such as to offer a large and immediate practical problem.

2. The availability of Binet-Simon and other intellectual tests makes desirable the establishment of numerous dispensary centers for preliminary diagnosis, so that cases suitable for well-tried educational methods in our state schools may be winowed out.

3. The criminalistic group has been singled out, hardly so far as a problem of the present, but as a problem of the future, dependent for solution on psychological data not yet available.

4. Estimates of the numerical size of the problem are available, and a promising preliminary survey is being made by the Board of Insanity.

5. Social sense of the importance of the problem has been aroused, though not, it may be hoped, to the point of impatience with the degree of progress humanly possible.

6. The interest of specialists in children's diseases has also been aroused, and the eventual results of certain children's diseases are being shown in the concrete case.

7. Workers in eugenics are being enlisted to study the hereditary factor in some of these so-called "acquired" cases, and, it is hoped, will solve the problem of the interplay of heredity and somatic factors in the pathology of feeble-mindedness.

8. Statistical inquiries seem to justify the idea of a *chiaroscuro* of distribution, which means that society is not just generally degenerating and that the places to begin preventive work can be chosen scientifically.

9. Statistics tend to indicate that the problem is rather a medical than an economic one, or perhaps better, more medical than economic, standing a bit one side perhaps from crime, some part of which is economic.

10. The interplay of hereditary and somatic factors promises to show lines of prevention both eugenic and environmental.

11. We can educate communities in eugenics and we can conceivably transplant, by a proper family-care system, feeble-minded persons from neighborhoods where they would unite with others of their kind to regions where they would either not marry or would marry normal persons, thus diluting the strain (feeble-minded males are probably less dangerous in the community than feeble-minded females, which latter should be segregated by preference in institutions).

12. Socialism of the Fourier-Marx type will have to reckon with this problem; it would not appear that communism has any ready solution

for the problem of those who, being feeble-minded, are by nature neither free nor equal. On the other hand, some form of socialism of the St. Simon type, or what may be termed state socialism, is the most practicable form to cope with this problem. Indeed the practical solution of these problems of feeble-mindedness and allied defects is fast leading us to something of the sort, whether we choose to call it socialism or not. Yet how many would-be socialists face the congenital or acquired inequalities of men with frankness and clear understanding?

UNDER WHAT CONDITIONS IS THE DIAGNOSIS OF "TUBERCULOSIS" IN CHILDREN JUSTIFIED?*

BY JOHN B. HAWES, 2ND, M.D., BOSTON.

THE question raised in the title of this paper is an important and pertinent one. There are many who believe that the theory of childhood infection is being carried too far. However opinions may differ as to this, everyone will agree that the diagnosis and treatment of tuberculosis in childhood is one of the most important, if not the most important problem, not only in tuberculosis and its prevention, but in the entire field of preventive medicine. The children of today are the men and women of tomorrow; the weak and sickly children of this decade are the consumptives of the next, whether or not scientists still wrangle over the problem of the path and the exact time of infection. It is, therefore, urgently necessary that some definite standard be adopted and recognized by every one as to the exact signs and symptoms, or group of signs and symptoms on which it is just to make such a diagnosis. Of course I do not refer in this paper to children with advanced pulmonary tuberculosis, with or without a positive sputum.

It is indeed a step which demands the utmost consideration to stamp a young child as tuberculous and to cast on him and on the family the stigma, however slight this may be, that the name carries with it. Tuberculous infection is one thing,—tuberculous disease is another. Statistics, based on careful pathological investigation, as well as on the results of tuberculin tests, offer clear proof that a large proportion of children, 60% to 90%, according to different observers, are infected with tuberculosis by the time the fifteenth year is reached. This does not mean tuberculous disease, or what we generally term "clinical tuberculosis." Many of these children, indeed the great majority, are perfectly well and without symptoms. How to recognize and do justice to the comparatively small proportion in whom the disease is active and is causing symptoms, what should be their treatment, and how radical steps should be taken in reporting and segregating these patients are most important and ever-present problems.

In Boston, and I presume elsewhere, there is at the present time a great diversity of opinion among doctors at the various clinics as to diagnosis and treatment of this class of children. It is perfectly possible for an anxious mother to take her small boy of ten to one large clinic and be told that he has consumption and must (and is made to) leave school; at the earliest opportunity she takes him to another clinic where the boy is again examined by equally skillful and conscientious physicians, who tell her that her boy has a cold, but certainly has not "consumption." Much relieved, but still anxious, she takes him to a third clinic, where an x-ray of the chest is taken. This discloses a few "bronchial glands and peribronchial thickening with a slight haziness at the right apex." The x-ray expert reports his diagnosis as "Bronchial Glands. Ph?" Exactly what this means may be, but usually is not, explained to the mother, and in any event, as can be readily imagined, fails to relieve her worry over her boy. And so the case drags on, the mother naturally (and quite properly) refusing to allow her son to be sent to a sanatorium or hospital for consumptives, and the physicians at one, at least, of the three clinics visited, still firm in the belief that here is a case of tuberculosis which needs radical treatment.

The following case is a striking example of this state of affairs:—

L. R., a little Armenian girl of 7, living in the thickly settled Armenian quarter, was sent to me for examination from one of the settlement houses of that district. There was a doubtful history of exposure from a grandmother, who had recently died of tuberculosis, and from a brother in whom such a diagnosis had been made, but later not substantiated. The exposure from the grandmother was also eliminated as a factor, to my satisfaction at least. The child had been examined on the morning of the day she was sent to me at a local tuberculosis clinic by two leading authorities in tuberculosis in this city, and pronounced tuberculous on the following evidence. Cough at night, morning temperature, night sweats, and history of exposure,—the last somewhat doubtful, as shown above. Examination at this clinic showed "a definite active process at the right apex, with a limited right basal expansion and well-marked signs of bronchial glands." The mother was told that her child had consumption, and that she must leave school. My examination in the afternoon showed a strong, well-developed and nourished, healthy-looking child. The tonsils were very much enlarged,—sufficiently so to account for any cough or fever which she might have at night or any other time. In the lungs aside from very slightly increased signs at the right apex, I could find nothing abnormal in any way. No râles were heard at any time.

* Read before the New England Pediatric Society, March 27, 1914.

The d'Espine sign was negative. There were no glands. One tooth was carious. I definitely committed myself in writing as being unable to find any evidence of active or clinical tuberculosis in this case, and that I could see no reason why she should not go to school.

A few days later the child was taken to the children's department of another large general hospital, where she was carefully examined by several leading pediatricians, and where I again went over her. Here, in the morning, she had a slight temperature of 99.2°. The lungs were pronounced negative. The d'Espine sign at this visit was negative. A careful skin tuberculin test, done at two separate occasions, was entirely negative each time. An x-ray was taken which was inconclusive, while a later one showed a few enlarged bronchial glands. At this later visit also the child had a cold, and the d'Espine sign became a positive one until the cold subsided, when it returned to normal limits.

The case was not considered one of clinical tuculosis.

Later the child was taken to another dispensary and pronounced normal. The mother, naturally enough, has refused to take her to any more doctors, but is still greatly worried over the question as to whether or not her child has consumption.

This case represents an unfortunate state of affairs. Others similar to this are not uncommon, and are bound to increase as time goes on, unless some definite standard is reached and agreed upon by all. The physicians who saw this patient, whether they regarded her as a case of tuberculosis or not, were sincere in their desire to do what each thought was right; treatment advised was practically the same at the different clinics visited, except that one group of doctors thought that the child's condition warranted the use of the term "tuberculosis," while the other group did not. The two negative von Pirquet reactions in a child of seven are the only features which those who took the more radical stand must find it hard to satisfactorily explain.*

Everyone will agree that the diagnosis of early tuberculosis in children (advanced pulmonary disease offering no difficulties in diagnosis) must be based on:

(*a*) Bad family history or a history of exposure to tuberculosis.

(*b*) Constitutional signs and symptoms, such as fever, rapid pulse, loss of weight and strength, malnutrition, debility, undue fatigue, anemia, frequent protracted "colds," etc.

(*c*) Local signs and symptoms referred to the lungs, such as cough, often paroxysmal, dry, throaty or even brassy, usually without sputum, hoarseness, unequal pupils, slight substernal dullness with high-pitched intense expiration and whispered voice at the right apex, intense bronchial whispered voice over the spine lower than the third or fourth dorsal vertebrae (d'Espine's sign) and rarely paravertebral interscapular dullness.

(*d*) Evidence of enlarged bronchial glands as shown by the x-ray.

(*e*) A positive tuberculin reaction.

Any child who has constitutional and local symptoms, a positive tuberculin test and confirmatory x-ray evidence, should quite justly be considered as a case of active clinical tuberculosis and be so designated and treated. This is easy enough. The great difficulty lies in the fact that "type" cases are rare, and that in 99% of such children the physician must base his diagnosis and treatment on much less than the above-mentioned symptom complex; he must "size up" and accord their value to the symptoms as they present, balancing in his mind what is lacking here against what is present elsewhere, and finally, he must base his decision on the picture he has so formed. His decision in each case should answer the following questions:

(*a*) Has the child tuberculosis?

(*b*) If so, is tuberculosis the cause of the present symptoms?

(*c*) Is the child a danger to the community?

(*d*) Does he need radical, aggressive treatment in a sanatorium, hospital or other institution for consumptive children?

(*e*) Should he be definitely considered as a case of tuberculosis, reported as such, and his parents or relatives informed of this fact?

(*f*) If not, how can he be kept under supervision and control, and should he be removed from school?

(*g*) If he is taken out of school, what do you offer in its place?

(*h*) If he has not tuberculosis, what is the matter with him, and what are you going to do about it?

What, then, is the relative value of the various points mentioned above, on which the diagnosis must rest? The first, a bad family history or exposure to tuberculosis, is an important factor, if present, but one whose absence need not interfere with a positive diagnosis. While it can be said that for all practical purposes, tuberculosis is not inherited, there is no doubt but that weak constitutions and a lessened resistance to tuberculosis may be and often are inherited. In regard to exposure to tuberculosis, the weight to be given this point depends on the length and intimacy of such exposure. These points should be carefully investigated in every case.

Next in order come the constitutional signs and symptoms. In my opinion, a diagnosis of early clinical tuberculosis in childhood is rarely justifiable, unless such constitutional signs and symptoms are present. Without these, except in very occasional instances, no matter what the x-ray may show, and what the signs in the lungs may indicate, I doubt if it is safe or just to stamp the case one of consumption. On the other hand, I have many times made such diag-

* It is interesting to note that a recent von Pirquet test gave a positive reaction. This may or may not mean that the patient was sensitized by the two former ones.—J. B. H.

noses and occasionally sent children to a sanatorium on constitutional signs alone. There is no field of evidence which better repays careful study than this.

Third in the symptom-complex, I have placed signs and symptoms referred to the lungs. Cough and sputum speak for themselves, and have many causes other than tuberculosis. Marked dullness, râles, etc., are easy enough to find, and require no special skill. The detection of finer shades of dullness, or rather diminished resonance, resistance under the finger, the significance of harsh or puerile breathing, prolonged high-pitched expiration, bronchial whispered voice, substernal and paravertebral dullness, require long experience, constant daily practice with such cases, and the greatest of skill to interpret properly. At present much weight is placed on a positive d'Espine sign. When we analyze what this sign really means, we find that it simply suggests that something is present which transmits the whispered voice and breath sounds from the trachea and larger bronchi through to the dorsal vertebrae at a lower level than is usually the case in normal healthy children. It has been taken for granted that this "something" is usually enlarged bronchial lymph nodes, and it has been further taken for granted that these enlarged lymph nodes are necessarily tuberculous, and further still, that they must be the cause of the child's symptoms. All these hypotheses are interesting if true. I do not think that we yet fully understand just what this phenomenon really does mean. It has been found present in perfectly normal individuals a sufficient number of times to show that, like a tuberculin reaction, while it may mean infection, does not always mean disease; again, it has been found present following various acute diseases, especially measles, often enough to show that it does not always mean tuberculosis. I am strongly of the opinion that further investigation must be made before we can attach much significance to a positive d'Espine sign alone as pointing to a tuberculous infection.

Coming to x-ray evidence, here again we are dealing with something which taken alone is not of great value, but which in conjunction with other features may be of grave significance. It must be remembered at all times that the x-ray picture is one of lights and shadows; that such evidence is dumb, and cannot tell us whether the shadows of the glands we see in the picture mean tuberculosis or not, and, if the former, whether the infection is old or recent, active or latent. Whenever possible the x-ray should be interpreted by an expert and by one who recognizes the limitations of his specialty. Such men do exist, but they are rare.

Finally, what does the tuberculin test offer us in such cases? To me the answer is clear and definite. A negative skin tuberculin test (the only one which should be used in children), in the absence of factors which might cause a negative reaction, if carefully performed and confirmed by a subsequent negative reaction, is as good evidence as there is that tuberculosis can be ruled out. A positive test is not so conclusive, but, like the x-ray, is only a small bit of confirmatory evidence to be taken in conjunction with other features of the case.

In conclusion, then, in answering the question asked in the title, "Under what conditions is the diagnosis of 'tuberculosis' in childhood justified?" I would state my opinion as follows:

1. Let it be clearly understood that by the term "tuberculosis" I mean clinical tuberculous disease which presents a definite picture and which requires definite treatment.

2. In the absence of advanced tuberculosis or a recent infection with some acute disease which might cause a negative reaction, a diagnosis of tuberculosis is rarely justified unless there is a positive skin tuberculin reaction.

3. Constitutional signs and symptoms are usually present and require careful study and investigation. If such symptoms are absent, a definite diagnosis is unwise, although this should not interfere with placing the child under proper treatment.

4. Signs referred to the chest and lungs are of interest and value, if present; if absent, their absence should not preclude a definite diagnosis. If present without constitutional disturbance, look out for chronic influenza and pneumococcus infections.

5. Positive x-ray evidence is of value in conjunction with other evidence. Diagnoses based on the x-ray alone are apt to be wrong, and are unjust to the patient.

THE CAUSES AND THEIR RELATION TO THE TREATMENT OF LATERAL CURVATURE OF THE SPINE.

BY Z. B. ADAMS, M.D., BOSTON.

MANY will remember the work on numerical variations of the spine done by Dr. Max Böhm. He made the statement that the upper surface of the sacralizing vertebra might be tipped and thus cause scoliosis. This may rarely be true. Some three years ago in checking up this work of Dr. Böhm the conclusion was reached that so far as the cause of scoliosis is concerned, lesions of the articular processes were of far greater importance than asymmetrical sacralization.

The x-rays of any clinic show that asymmetrical sacralization is of frequent occurrence in cases radiographed for pain in the back, or loin, etc., where no scoliosis existed. The Dwight collection of spines bears this out for it contains many examples of asymmetrical sacralization, but few of scoliosis. In the few with scoliosis, a lesion of an articular process is present and the transverse processes are normal. There is one

spine, however, which has scoliosis and one broad transverse process, but there is in that spine an absence of the left posterior centre of ossification, of the first sacral segment, which seems the cause of the scoliosis, rather than the broad transverse process.

There are a few pertinent facts to be noted regarding the spine and the base on which it rests.

The column of centra and intervetebral discs obeys the laws of physics for flexible rods. The motions are somewhat limited in certain directions by the shape of the vertebral bodies. By the attachment of ribs and posterior columns *i.e.* the columns of articular processes, the motions of this flexible anterior column are still further limited; they not only govern the motions, but in extension their articular facets are in close contact and they share in the function of weight-bearing. The support of the column is then tripedal. In moderate flexion their surfaces are separated and motion is most free.

The usual ossification of a vertebra is from three primary centres, one for the centrum and one for each lateral mass. In a certain number of individuals the fifth lumbar vertebra is laid down by five centres of ossification instead of three, the posterior lateral mass being divided into two parts. One part forms the pedical, transverse and superior articular process and the other part the inferior articular process, lamina and one-half the spinous process. Sir William Turner has found that in five per cent. of all subjects the posterior part fails to fuse with the anterior part of the lateral mass.

The facet on the upper surface of the sacrum on which the spine rests, faces downward and forward, and in the average female has an inclination downward from the horizontal of forty degrees, and in many individuals this inclination is much greater. The under surface of the fifth lumbar vertebra faces downward and backward, hence, by a forward movement of this body on one side, that is, a rotation of one surface on the other, a lateral tilting of the base occurs. At forty-five degrees of inclination, a movement forward of one-fourth of an inch gives a drop of one-fourth of an inch.

The only bony obstacles to this one-sided spondylolisthesis are the articular process on the top of the sacrum and the inferior articular process of the fifth lumbar vertebra, which are not attached to the vertebra in one out of every twenty subjects. Nowhere are bony anomalies more frequent than in the low lumbar spine and in the sacrum.

The ligamentous supports are the anterior and posterior common ligaments, the intervertebral disc, the ilio lumbar and lumbo-sacral, the interspinous and superspinous, the capsular and subflavel ligaments.

When there is an overgrowth, underdevelopment or deformity of the articular processes, one of the legs of the tripod of support of the spine becomes longer or shorter or unstable. We then have a condition analogous to a camera on a tripod, with one short, long or loose leg.

From an analysis of the twenty-two cases in the scoliotic clinic, of which careful x-rays, many of them stereoscopic, have been taken and interpreted, the results are as follows:—

They are not 22 selected cases which show interesting x-ray lesions, but are all the cases of which we have thus far been able to get good x-rays.

The following list, consisting of four boys and eighteen girls, comprises 2 dorsal cases, 4 between the fourth and fifth lumbar, 14 lumbo-sacral, 1 sacral and 1 infantile.

Deformed third and fourth dorsal vertebra (Bell).

Slipping of seventh on eighth dorsal vertebra (Thomas Judge).

Deformity of right inferior articular process, fourth lumbar (McBride, Case I).

Distortion of right superior articular process, fifth lumbar (Pearson, Parmenter, Connors, broad wing).

Faulty fusion of left inferior articular process of fifth lumbar (Cate, Tuttle, Oakley, White, Gordon).

Faulty fusion of left pedicle with body of fifth lumbar (Morrison).

Spina bifida of first sacral segment, sacral articular processes asymmetrical (Guillette, Moore, Kelley, Shapiro, Neilly).

Overgrowth of right superior articular process of sacrum (Swartz).

Absence of neural arches throughout sacrum, its articular processes diminutive (Callahan).

Failure of first posterior segments of sacrum, first sacral centrum deformed (Briggs, Case 2). Faulty fusion of second and third sacral segment on left (K. Judge).

Infantile paralysis, no deformities (Hadgi).

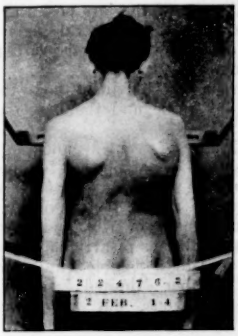
Treatment. The relation of these findings to treatment are as follows:—

From the time of Hippocrates, and perhaps before, various racks, ladders and frames have been used in an effort to reduce or correct the deformities of scoliosis. The deformities often are made worse, or if temporarily corrected they recur. The lateral deviation has been improved in some cases at the expense of an increase of the rotation. Many times the scoliosis is attacked with no regard to the cause of the deformity.

The flexed position, as employed by Drs. Forbes and Abbott, is an undeniable advance, it relaxes the spine with the articular processes separated, thus allowing the freest possible motion. In no other respect are their methods similar. Abbott pulls with the old brute force, in the same direction which has been found in the past, when the spine was locked in extension, would increase the rotation. Forbes, with a thoroughly scientific method based upon a careful research into the physiology of the human spine and the spine of a scoliotic, rotates his case in



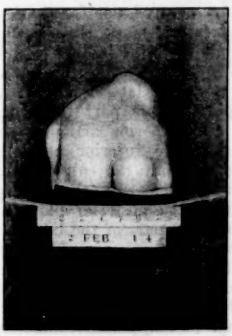
CASE I. McBride.



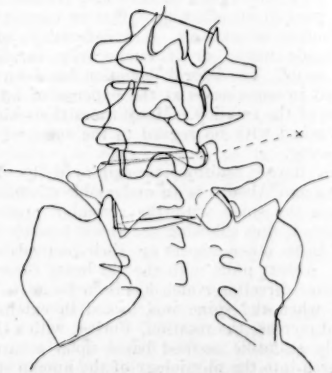
CASE II. Briggs.



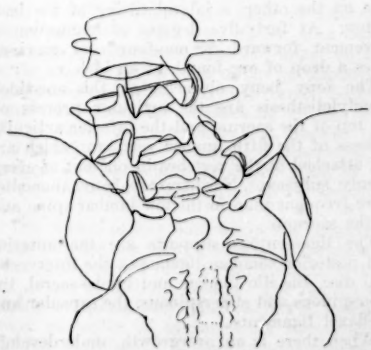
CASE I. McBride.



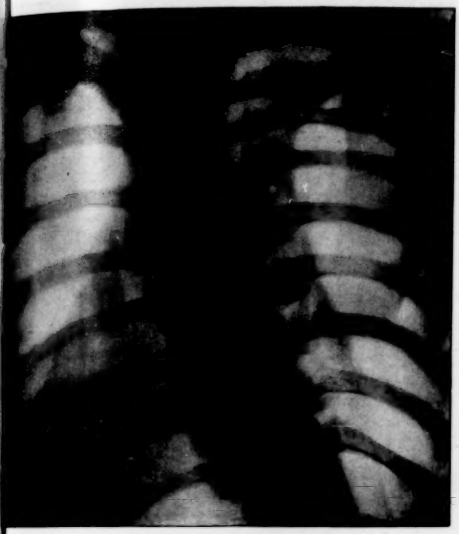
CASE II. Briggs.



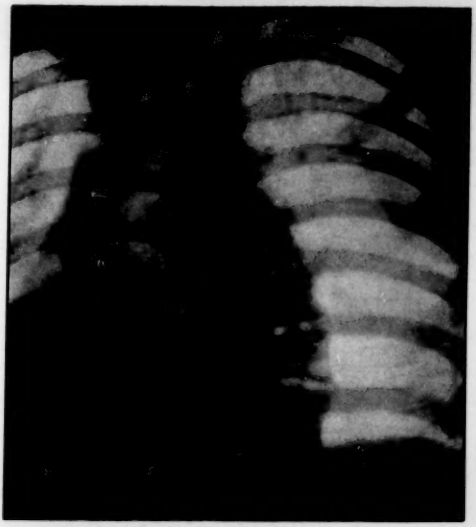
CASE I. McBride.



CASE II. Briggs.



CASE I. Upper Spine.



CASE II. Upper Spine.



CASE I. Lower Spine.

CASE I. Albino McBride, age 14. July 17, 1913. (First visit O. P. D.)

Curve noticed in April, 1913, by school physical training teacher. Bad posture not noticed before this. Diagnosis: *Scoliosis*, right lower dorsal; left lumbar. Right inferior articular process of fourth lumbar is underveloped.



CASE II. Lower Spine.

CASE II. Ernest Briggs, age 17. August 21, 1913. (First visit O. P. D.)

Complaint: back and chest. Duration: four years. Cause: ? fall.

Present symptoms: pain on lifting. Diagnosis *Scoliosis*.

"Four years ago fell about 30 feet, striking on his side and back and apparently not hurting himself. About three years later he began to notice that he was getting humpbacked and began to have pain in his back. Pain began a short time before deformity was noticed. The pain is only present when he lifts or bends forward."

"Examination shows very well marked degree of scoliosis."

The pelvis is not rotated for the spines of the ischii show evenly. The lower sacrum is but slightly rotated. The neural arches are imperfect throughout the sacrum and the first sacral segment is imperfect and rotated to the left, and its articular processes unevenly distributed from the middle line. Fifth lumbar vertebra rotated to left and tip forward and to the left.

exactly the opposite direction from Abbott, and all other operators. The two methods are diametrically opposed to one another, hence cannot be combined. Strangely enough, either method may correct, and overcorrect in certain cases. In certain cases one method is better than the other. Can we not say that in certain cases relapse will occur and in certain other cases that neither method will correct?

The x-ray findings show that some of these cases cannot be corrected by any method until a bony obstacle is removed surgically. Some of them if they are corrected will certainly relapse unless the defective articular processes are locked together.

Where one side of the fifth lumbar vertebra has slipped forward it must be fastened back in place or it will again slip forward. In the cases where there is a double rotation, the fifth lumbar vertebra rotated to the right, the fourth rotated to the left, the condition cannot possibly be corrected by any method of lateral pulling or rotation.

In cases where there is faulty fusion of the neuro-central suture the fifth lumbar body must be surgically pinned to the sacrum. There is no harm in sacralizing the fifth lumbar body.

Many of the cases due to deformity of the sacrum may be inoperable and best treated by a supporting corset to transmit part of the weight of the body trunk to the iliac crests.

Another fact brought to mind is the danger of treating some of these cases by head suspension, which increases the forward inclination of the pelvis, hence the tendency of the fifth lumbar body to slide forward on the sacrum.

Where the defect is in the articular process of the sacrum or fifth lumbar, these children should be taught to sit with a rounded lower back and stand in the flat-backed position, for this will keep the sacrum under the spine.

CONCLUSIONS.

1. A careful x-ray study in each case is indispensable before treatment.
2. Fourteen of the twenty-two cases in the clinic show a congenital lesion at the lumbosacral junction.

The fact that the age (ten to fourteen) when the anterior lumbar curve becomes constant, is the age when scoliosis develops in a large number of cases is interesting. At this age the weight of the upper trunk is increasing most rapidly and the epiphyses of the iliac crest have not appeared.

The vertebral sacral angle varies widely, but is great in females.

The increased tipping throws greater strain (both downward and forward) on the articular processes, and as the angle of inclination increases the horizontal thrust becomes more vertical and the strains tend to unite. Hence, when these processes are defective scoliosis develops.

3. Many of the cases should be operated on either before correction is attempted or after correction is obtained.
4. A knowledge of the character of the lesion allows a prognosis.
5. This knowledge explains some of the many failures of the past.

It is obvious that in this paper some of the true causes of scoliosis have not been mentioned, but from an inspection of the cases in our clinic attention has been drawn to some of the very frequent causes hitherto overlooked.

NITROGENOUS METABOLISM IN A CASE OF CHRONIC MYELOGENOUS LEUKAEMIA.

By Harry W. Goodall, M.D., Boston,

Assistant in Biological Chemistry, Harvard Medical School; Associate in Medicine, Peter Bent Brigham Hospital; Physician to Boston Dispensary.

In any condition associated either with a considerable increase in the number of leucocytes in the blood or with the destruction of large numbers of leucocytes, such as occurs in Leukaemia, it would be expected that such a change might be indicated by the excretion of urinary nitrogen and more especially by the uric acid nitrogen, in as much as leucocytes are bodies rich in nucleins.

From a review of the rather extensive literature of the subject, it is to be concluded that during the ordinary course of the disease the total urinary nitrogen, as a rule, correspond closely to the protein of the diet and the excretion of uric acid varies only within normal limits. During periods of rapid leucocyte formation or more especially during periods of rapid leucocyte destruction the change may be indicated by the nitrogen output but this is by no means the rule. When such a change does occur it is especially indicated by the increased output of uric acid. No definite relationship, however is found to exist between the number of leucocytes and the quantity of uric acid excreted.

Instances are recorded in which periods of marked leucocyte destruction are accompanied by a diminished or normal excretion of uric acid as well as an increased excretion. Even the rapid dissolution of leucocytes following x-ray exposure may not influence the urinary nitrogen. These varying results have been explained in part by the supposition that there is a retention of some of the intermediary bodies for the purpose of forming new leucocytes and in part by the supposition that the destruction of nuclein is carried beyond the stage of uric acid. In a large measure, however, the variations are to be explained by the shortness of

the period of observation and the failure of the observer accurately to determine the food intake.

In the following case special attention was given to the food intake. The "starch and cream" diet employed by Folin in studying the urine of normal individuals was selected since it is practically free from protein, and fulfills the caloric requirements. At the same time it permits of comparison with normal protein metabolism. The case is of special interest inasmuch as the patient was passing through a period of rapid leucocyte dissolution during the time she was under observation.†

Briefly, the case is that of a Jewish woman, 32 years of age, with a typical myelogenous leukemia which had existed three and a half years previous to this study. For two months, the time previous to and including the period of this observation, she was given Coley toxins nearly every day.

On June 7 (see table below) she was given the "starch and cream" diet for a period of seven days. Previous to this there had been no change in the leucocyte count, but during the period of observation there was a pronounced and rapid fall. It is probable that this fall was entirely independent of the diet, since a second case of leukemia placed under exactly the same conditions failed to show any decrease in the number of leucocytes. Unfortunately the results of the second case are valueless, owing to mistakes in collecting the urine.

Date.	Leucocyte count.	Vol. urine.	Total N.	Uric acid.	Uric acid N.	Per cent uric acid N.
May 31	161,600					
June 7		1815 c.c.	9.9 gm.	0.72 gm.	0.24 gm.	2.5%
June 8		2055	6.2	0.65	0.22	3.5%
June 9	29,800	2676	3.1	0.99	0.33	10.6%
June 10	18,450	1920	7.3	0.74	0.25	3.4%
June 11	14,700	1790	6.1	0.32	0.11	1.8%
June 12		1690	5.9	0.68	0.23	3.9%
June 13	9,550	1500	7.1	0.78	0.26	3.6%
Total			45.6 gm.	4.88 gm.	1.64 gm.	
Daily average			6.5	0.69	0.23—	3.6%
Normal average			5.2	0.33	0.11—	2.1%

The methods employed in making the determinations are those described by Folin.

Subsequent History. Toxins were continued for one month after these observations were made, at the end of which period the leucocytes counts reached a minimum of 3,300. After the omission of the toxins the leucocytes began to increase and reached 45,000. The patient developed a membranous stomatitis and broncho-pneumonia and died in about ten weeks after the end of the period of observation.

In comparing the average daily excretions with the normal there can be no doubt as to a considerable increase in the output of total urinary nitrogen and of uric acid. This increase is more clearly seen if we compare the total excretion of the last six days, the first day being omitted because of its close dependence upon the protein in the diet of the day previous, with four of Folin's normal urine at a corresponding period.

	Total N.	Uric Acid N.
Leukemia case	35.7 gm.	1.40 gm.
Normal person	32.9 gm.	0.70 gm.
Dr. H. B. H.	32.3 gm.	0.59 gm.
Dr. E. A. S.	24.2 gm.	0.56 gm.
Dr. Aug. H.	30.1 gm.	0.82 gm.

Analysis of the table brings out two points of special interest; first, that the daily excretion of uric acid N. shows a wide range of variation, 0.11 gm. to 0.33 gm. without any constant relation to the total nitrogen, and secondly that the day (June 9) when the largest quantity of uric acid was excreted the minimum quantity of total nitrogen was excreted. This suggests the possibility of some error, especially so inasmuch as the urinary nitrogen does not normally sink to this low level with this diet as early as the third day, but constant results were obtained with repeated determinations. It is interesting to note, in connection with the increased nitrogenous metabolism, that the daily quantity of urine excreted was approximately a little in excess of the quantity excreted by normal persons on this diet, and that on the particular day in which the disturbed relation between the uric acid nitrogen and the total nitrogen was the greatest an excessive quantity of urine was passed.

An inference from these observations relative to the metabolism during rapid leucocyte destruction would favor the hypothesis that the destruction can be carried beyond the uric acid stage.

Such a supposition would explain the marked variations which are here shown. Retention for the purpose of new leucocyte formation, while possible, seem improbable in view of the fact that the white count continued to fall and that no increased was noted within four weeks after this period of observation.

† I am indebted to Dr. Ralph C. Larrabee for the privilege of undertaking the study and for the leucocyte counts herein tabulated.

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AURAL VERTIGO.*

By D. Harold Walker, M.D., Boston.

The subject of aural vertigo was first brought to my attention by coming in contact with a remarkable family, eleven members of which, during four generations, were affected with vertigo of the apoplectic type. This series I reported in the Transactions of the American Otological Society in 1910. Since that time I have observed a number of similar cases, and recently I had the opportunity of attempting the relief of the distressing symptoms by operation, upon a case kindly referred to me by Dr. Clarence J. Blake.

Aural vertigo is a symptom common to a number of affections such as the more or less transitory vertigo, due to toxaemia, to gastric, or to ocular causes; but at this time I wish to discuss the form of vertigo which is often called Pseudo-Meniere's disease. It is an affection that occurs most commonly in persons of middle age; persons usually healthy in every other respect, the attacks occurring at almost any time, often with no regard as to whether the patient is active or at rest.

That the labyrinth is a closed cavity is the opinion of all observers. Although there are the aquaeductus vestibuli and the aquaeductus cochlae, they are not patent for the free passage of fluid, according to the researches of Schwalbe and Schonemann. The aquaeductus vestibuli contains the ductus endolymphaticus, which ends in the saccus endolymphaticus, an organ which has long been overlooked, yet a constant in all animals where hearing is a sense. One cannot here enter into a description of the important part it plays in the lower animals, nor its prominence in the development of the human ear.

Suffice to say that it is always present, and from the experience of Kummel, its preservation is necessary for hearing.

When one appreciates the extreme sensitiveness of the equilibrium, which must be maintained in the labyrinth to enable the perception of delicate sound waves, it is reasonable to believe that, if there were an intimate relation between the cranial cavity and the labyrinth, the constantly varying intracranial pressure would destroy that equilibrium. The experiments of Lafitte-Dupont showed that variations in intracranial pressure cause similar changes in arterial pressure. Also, the yet unpublished work of Dr. Ayer of this city shows the enormous variations, which may occur in intracranial pressue, and that the withdrawal of varying amounts of cerebrospinal fluid does not, necessarily, cause vertigo or deafness.

It is a recognized fact that there exists in the organism, in the normal state, an energy or a principle which determines and preserves the amount of fluid in serous cavities. This is true whether it be the pericardial, the pleural or the cranial cavity, the eye and probably the labyrinth. If the venae Galeni in the brain becomes closed, hydrocephalus results. If the canal of Schlemn is closed, glaucoma is the result. Is it not possible that pathological changes may occur in the labyrinth, causing an increase in pressure, and vertigo be the result?

It is generally admitted that true apoplectic vertigo is caused by increased labyrinthine pressure, and this belief is justified by the fact that what relief has been obtained has been through agencies which cause either a lymphatic or a circulatory depletion, such as pilocarpine, adrenalin, purgatives, lumbar puncture, the use of setons or, by the surgical destruction of the labyrinth. Again the theory is strengthened by the results of the removal of the stapes, with a transient relief of the attacks of vertigo, and the recurrence of attacks after the foramen ovale has become closed.

Patients affected with this type of vertigo nearly always have diminished hearing, to a greater or less degree. This is true without respect to age. In the cases which have come to my attention, there is little objective evidence of middle ear change, so that the conclusion drawn is that there is a degree of osseous change, which in the first place would destroy the extrinsic mechanism for the control of labyrinthine pressure, as shown by Blake and Wales. Secondly, is there any reason that the process be limited to that portion of the labyrinthine capsule? Could not that osseous change involve the region of the aquaeductus vestibuli, causing a cessation of any function the saccus endolymphaticus may have, acting as an intrinsic organ of equilibrium? Also, could not that same change affect the lumen of the aquaeductus cochlae and of the aquaeductus vestibuli, resulting not only in impeded drainage, but possibly in a passive congestion, by retarding the venus flow? If the foregoing suggest a possible hypothesis, it would explain the reason for the gradual increase of pressure, until a maximum is reached where relief is obtained by a sudden decrease in tension, due to the forcing of fluid through the lymph spaces in the aquaeductus cochlae or a rupture of some part of the membranous labyrinth. The sudden lowering of the labyrinthine pressure would occasion the apoplectic attack of vertigo.

Attacks would recur when the anatomical conditions were reestablished, and after a period of time depending upon the rapidity of internal secretion.

The case I wish to present is that of a man about thirty-five years of age. Previous history of any affection of importance is negative. Habits good. There has been a gradual decrease in hearing, with tinnitus, for several years. The first attack of vertigo occurred eight years ago; since then they

* Read before the International Otological Congress, Boston, August, 1912. Received for publication March 20, 1914.

have varied in severity and are often accompanied with nausea and vomiting. No noticeable change in the tinnitus after an attack. The usual therapeutic measures were of no avail, and lumbar puncture, with the withdrawal of from 15 to 20 c.c. of fluid was performed six times without any relief. I may add that there were no unpleasant after-effects due to the withdrawal of the fluid. The hearing is as follows:

RINNE TEST.

RIGHT.	LEFT.	
25″ a.c.	20″ a.c.	35″ Blake fork used, 256 v. d.
10″ b.c.	8″ b.c.	12″

$\left.\begin{matrix}35'' \\ \hline 12''\end{matrix}\right\}$ = Normal.

d. v. 128 c low limit c.
d. v. 8128 c high limit c monochord, same for a.c. and b.c.

Whisper heard in the right ear at a distance of 6 feet, and a low spoken voice heard in the left ear at a distance of 1 foot. Blood pressure about 135 mm. of Hg. Spinal pressure 30 mm. Because of extreme vertigo, vestibular tests were not performed. It was desired to preserve the hearing, if possible, and it was decided not to do the complete labyrinth operation as performed by Lake, but to destroy the ampullae of the horizontal and the posterior semi-circular canals, without destroying the cochlea. The usual antrum operation was performed, exposing the external horizontal canal. The cortex was partially sclerosed and very vascular. Whether the vascularity was indicative of an osseous change is questionable. The antrum was enlarged sufficiently to allow access to the vestibule without doing a tympanomastoid exenteration. The right semi-circular canal was entered with a dental drill, with absolutely no flow of perilymph as a result.

The vestibule was gently curetted through the anterior limb of the horizontal canal, and the lower limb of the posterior semi-circular canal was followed into the vestibule with a curved probe. The wound healed by first intention, and the patient was discharged from the hospital in about ten days. There was no tympanic reaction from the operation. There was marked lateral nystagmus towards the affected ear. I have not seen the patient recently, but he states in a letter that he had returned to work, that the vertigo had disappeared, but that the tinnitus persists, and that he staggers when he walks. As the operation was performed but eight weeks ago, it is probable that compensation has not yet been established.

The fact that true aural vertigo causes such great prostration and is such a great inconvenience to the sufferer makes it essential that we do all that is possible to alleviate the symptoms or cure the affection. In mild cases, where there is a more or less constant feeling of disturbed equilibrium and fear of impending attacks, depletion in the various ways in which it has been practised, as reported in literature, is recommended. Randall proposed in 1902 the use of small doses of adrenalin, as a capillary depressent, and his results have been very favorable.

Lumbar puncture, as first performed by Babinski, the French observers as reported by Molard, and by Blake and Putnam, should be tried. There is no doubt but that in certain cases alleviation and even complete relief has been effected by lumbar puncture, with the withdrawal of the fluid, and if done fairly soon after an attack, the labyrinthine pressure might be sufficiently reduced to give immunity from future attacks for a long time.

In just what way lumbar puncture may effect the intra-labyrinthine pressure is not known. In the above case it was performed six times with no effect upon the symptoms. The fact that there was absolutely no flow of the perilymph at the time of operation is in accordance with the theory of the closure of the aquaeducti. Dr. Ayer in the work already mentioned, performed lumbar puncture upon a series of about twenty cases and in one case only was there a complaint of temporary deafness and slight vertigo. The symptom most common to all was more or less headache. It is reasonable to suppose that withdrawal of any amount of fluid from the cranial cavity, in normal persons, would be immediately reformed. It is possible, that where beneficial results are obtained, they are probably due to a permanent lowering of the hypertension of the cerebro-spinal fluid.

In most severe forms of the disease, destruction of the labyrinth, as first performed by Milligan and later by Lake, seems to be justifiable.

REPORT ON LEUCOCYTIC INCLUSION BODIES.*

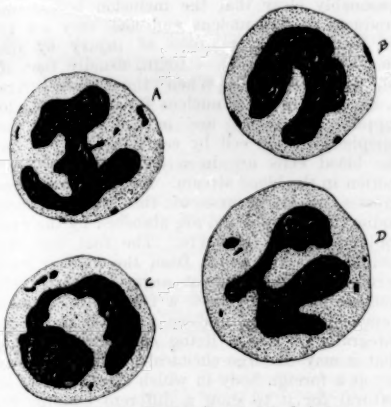
BY LEWIS WEBB HILL, M.D., BOSTON,

Medical Interne, Massachusetts General Hospital, Boston.

DÖHLE'S leucocytic inclusion bodies are small coccus- or bacillus-shaped bodies occurring in the polynuclear leucocytes of the blood in a number of diseases, especially in scarlet fever, and were first described by him in November, 1911. Since then, many articles have been written about these bodies so that another one would perhaps seem superfluous, but it may be of some value to report 100 cases studied at the South Department, Boston City Hospital. There will be no attempt made to give an extensive review of the literature as this has already been done in previous publications.

Döhlé himself first considered these bodies to be fragments of a disintegrated spirochaete which had been ingested by the polynuclear blood cell and called it the spirochaete of scarlet fever, believing it to be specific. This has, however, been discredited. Kretschmer, in 1912, examined 85 cases, 15 scarlet fever and 70 con-

* Read before the New England Pediatric Society, March 27, 1914.



Four Leucocytes Showing Characteristic Inclusions.
A shows prolongation of nucleus.
B shows most characteristic position of inclusions at periphery of cell.
C and *D* show variations in morphology of inclusions.

trols consisting of various diseases, and found the inclusions present in all the scarlet fever cases and in only four of the controls, those positive being two cases of diphtheria, one of tuberculosis and one of pneumonia. He was not able to reproduce the bodies in the blood of animals after injection with scarlet fever material.

Nicoll and Williams examined 51 cases of scarlet fever and 25 controls of diphtheria, erysipelas, pneumonia, tonsillitis and German measles, 45 of the scarlet fever being positive and only 3 of the others positive. These were one case of pneumonia, one of erysipelas and one of measles. Nicoll later reported a new series of 115 scarlet fever cases and found positive results in all but 16, all except 3 of these negative cases having been ill for over 7 days. 8 cases of erysipelas were all positive, as well as 7 cases of sepsis, most of them of puerperal origin.

Ahmed believes that the inclusions have a definite relation to the amount of fever and is of the opinion that they are fragments of the nucleus. Kolmer examined 214 cases of scarlet fever and found bodies present in nearly all of the early cases and in a few of the late cases, one as late as the 44th day. He also found them in 13 out of 50 cases of diphtheria examined in the first few days of the infection. Of 30 cases of serum sickness, developing a rash, none showed inclusions. Kolmer also examined bloods from a number of other diseases and concludes that the inclusion bodies bear a definite relation to the streptococcus toxin and that they are present in 94% of all scarlet fever cases during the first three days. He believes that they represent a degenerative process in the cell cytoplasm. He could not reproduce them in rabbits by the injection of scarlet fever material.

Granger and Pole had 191 cases of scarlet fever, 37 of measles, 27 of diphtheria, 24 of tonsillitis, 20 of pertussis, and 20 of serum rash, besides a number of other diseases. They found bodies present in 17 of the measles cases, in 27 of the diphtheria and in 14 of the tonsillitis cases. All of the scarlet fever cases examined before the fourth day were positive, but all except one of the pertussis cases were negative and all of the cases of serum sickness were negative. They conclude that the absence of inclusion bodies during the first four days of the sickness practically excludes scarlet fever.

Lippmann and Hofschmidt reached practically the same conclusions as the other authors cited concerning the occurrence of the bodies, but they believe them to be a product of excessive cell destruction in the body, which has been taken up by the polynuclear leucocytes. They consider that there is a parallelism between urobilinogen excretion in scarlet fever and the occurrence of the inclusion bodies, both being indices of cell destruction due to toxemia and fever. Bongartz regards them as products of the cell nucleus, which have been broken off by the action of bacteria, not specifying any particular group.

Schippers and de Lange were able to reproduce inclusion bodies in the blood of a dog after the injection of a streptococcus culture. They say, "The inclusion bodies are certainly not derived from the nucleus because they have different staining properties. For example, they stain red with methyl green and pyronin while the nucleus stains green."

Cummins believes that they are to be found in practically all febrile diseases, in chronic pyogenic conditions of afebrile character, in severe injuries without febrile disturbance, and in some normal individuals. He was not able to reproduce them in laboratory animals and believes that a nuclear origin is probable. Glomset found inclusions in the blood of normal individuals, 2 to 4% of the polynuclear leucocytes containing them. After the blood had been shaken vigorously with citrate solution, the percentage of leucocytes containing inclusions rose to 15 to 20%. He regards them as detached portions of the nucleus and says that in many cases the nuclei of the polynuclear leucocytes show partly detached fragments, similar in outline to the free bodies.

All of the scarlet fever bloods to be reported in this communication were obtained at the South Department of the Boston City Hospital, at the City Hospital proper and at the Massachusetts General Hospital. Four stains were used:

1. Granger and Pole's modification of Manson's stain prepared as follows: Methylene blue 1.5 grams; absolute alcohol 10 cc.; 5% solution of phenol in water 100 cc. Methyl alcohol was used as a fixative, it being sufficient to dip the slide into the alcohol, wash with water and immediately stain. This was

a very satisfactory stain. With it the inclusions stain a deep blue, the cell nucleus deep blue and the cell protoplasm a pale homogeneous blue.

2. Pappenheim's pyronin and methyl green (2 parts of pryronin to 4 parts of methyl green in saturated aqueous solution) was also found very satisfactory. This stain makes the prettiest preparations, the inclusions staining bright red and the cell nucleus a greenish blue.

3. Wright's blood stain.

4. 1% aqueous solution of pyronin.

Of these stain 1 and 2 are the most satisfactory.

One hundred bloods were examined as follows:

	Positive.	Negative.	Total.
Scarlet fever	43	29	72
Erysipelas	5	0	5
Pneumonia	4	1	5
Syphilis	0	2	2
Empyema	0	1	1
Secondary anemia	0	1	1
Serum rash	0	1	1
Normal	0	13	13

A case was not called positive unless well-defined and well-marked inclusions of fair size and characteristic appearance were seen in at least two or three leucocytes. Of the 29 negative scarlet fever bloods, all except 6 were after the tenth day. Three of these six were on the second day, one on the fourth and the other two on the eighth and ninth days. Of these six cases it is interesting to note that the temperature was normal and there was only a very scanty rash. All of the three which were negative on the second day were positive when examined again on the third day. Of the positive scarlet fever cases, 25 were before the tenth day and eighteen after it, the latest being on the 45th day.

The inclusions are perfectly definite, small, irregularly-shaped masses which stain homogeneously. Their average length is about one micron. They may be pyriform, ovoid, coccoid or bacilliform in shape. They usually lie at the periphery of the cell and in some cells there may be as many as five or six. The most characteristic ones are of the shape of a rather short, thick bacillus, usually with rounded ends and lie on the periphery of the cell with their long axes parallel to it. In any normal blood, there may be seen small granules which may superficially resemble the inclusions, but a blood should not be called positive unless absolutely characteristic and undoubted forms are seen. I have not been able to find inclusions in normal blood. It has been my experience that the sicker the patient, the higher the temperature and the more abundant the rash, the larger and more abundant are the inclusion bodies. In many of the polynuclear leucocytes may be seen small prolongations of the nucleus, as observed by Glomset; sometimes these are attached to the nucleus only by a very narrow strand and resemble in every particular the free bodies. It seems reasonably clear that the inclusion bodies are products of the nucleus and that they are in the nature of a reaction of injury by the nucleus to the bacterial toxin, usually that of the streptococcus. When these bodies are broken off from the nucleus it is reasonable to suppose that they are moved towards the periphery of the cell by centrifugal force, for the blood cells are in a continuous rotatory motion in the blood stream. As the disease progresses, in the course of time the inclusion bodies disintegrate and are absorbed by the protoplasm of the leucocyte. The fact that the bodies stain differently from the nucleus with certain stains does not argue against their nuclear origin, for once a fragment has been detached from the nucleus, it is no longer an integral part of the living cell. It is possible that it may undergo chemical changes and may act as a foreign body in which case it would be natural for it to show a different staining reaction from that of the nucleus. I was not able to reproduce inclusion bodies in the blood of a guinea-pig by the injection of a mixed culture of staphylococcus and streptococcus taken from the throat of a scarlet fever patient whose blood showed inclusions.

From my own observations and from those of other writers it seems fair to draw the following conclusions:

The inclusion bodies are present in a majority of cases of scarlet fever up to the tenth day; in nearly all cases before the fourth day.

They are not specific for the disease, being found in a number of other infections, most particularly erysipelas, sepsis, pneumonia and tonsillitis. They are more likely to be found in diseases with which the streptococcus is associated.

They have the following diagnostic value: If they are not found in a doubtful case which has a rash and a marked fever, the case is probably not one of scarlet fever. They are never found in cases of serum sickness (uncomplicated.)

They are probably in the nature of a reaction of injury of the cell nuclei, caused by bacterial toxins and are small fragments broken off from the nuclei.

I wish to express my indebtedness to Dr. Edwin H. Place, Physician in Chief of the South Department for permission to use the material in the wards and for his interest throughout the work.

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POOR HEALTH IN THE CHILD: SOME DEVELOPMENTAL INFLUENCES AND THEIR IMPORTANCE TO THE ADULT.*

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I. INTRODUCTION.

What per cent. of ptoses, adhesions, and other abnormalities of the adult are congenital? What proportion of the community suffers from them? What is their influence upon health? What is the proper treatment of these conditions? What is their influence upon the health of the children of the future?

These and other questions are the results of experience with the often unsatisfactory medical and surgical treatment at present applied to a large class of semi-invalid children and adults included under terms such as sickly, congenitally unfit, asthenics, visceroptotics, and neurotics.

The present paper outlines the first steps in a systematic attempt to put some of these questions on a basis which will permit of a satisfactory answer, and is in the nature of a preliminary note on some two years of work, more detailed reports of which will appear later. Much of it is from a period of sixteen months at clinics and post-mortem rooms in Europe; the remainder is more recent, especially certain observations from the children's department of the Massachusetts General Hospital Out-Patient Department, some findings during the new second year course in cross-section anatomy at the Harvard Medical School, and a rather extensive review of the literature, a summary of which may be found in the form of a bibliography which has recently appeared.*

My belief in the importance of the pediatric end of this developmental problem results from post-mortem work upon the adult, for it soon became evident that many of the peculiarities found in adults could also be demonstrated in children, in infants, and often even in the fetus. In such a case, it is obvious that the primary problem lies not in an adult, but in the child or infant in whom this adult has his origin; conversely, it has seemed probable that many an adult could have been spared years of misery and inefficiency, and have had much added to his productive power by adequate attention during his period of growth.

The world is full of people who from the point of view of the efficiency expert are below par; who as hypo-producers and often as hyper-reproducers become to a variable degree a burden upon the resources of others. Having excluded such extraneous causes as alcohol, syphilis, hookworm, and faulty habits, there will remain many cases for whom some other explanation than a neurosis must be found. Of these, many may be traced to demonstrable physical defects. But it is not enough to call the sufferer bilious, or weakminded, or tubercular, or rheumatic; for constitutional differences largely determine the diseases to which the individual is liable. Tuberculosis is a marked example of a disease which thus becomes a symptom by which we may state the developmental type of its victim.

The developmental influences to be discussed may be considered under the following three groups.

II. DEVELOPMENTAL INFLUENCES CLASSIFIED.

A. *Variations in Type Forms.* From a developmental point of view, man, judged by his intestine, belongs between the carnivorous and the herbivorous animals, and is more nearly related to the latter than to the former (Treves). Consequently the race falls into three type groups: (1) the herbivorous, (2) the intermediate, and (3) the carnivorous. It has long been known that type 1 has a wide short body form and a relatively long intestine, and that type 3 has a thin long body form and a relatively short intestine. This relationship between body form

* Read in part at the meeting of the New England Pediatric Society, May 1, 1914.

* *Surg., Gynec. and Obstet.*, May, 1914.

and intestinal length has been traced as far down in the scale of life as the reptiles and the insects (Dreike). Type 2 is of course less sharply defined, being as it is intermediate between the two extremes. More recently Bean has distinguished three groups on the basis of the germ layers, and has not only been able to recognize them by body form and the shape of the ear, but has made a rough classification of the diseases to which each type is subject. Also, and with reason, there have been many reports on the effect of the upright posture upon the viscera, a change which bears hardest upon the long, loose jointed, trumpet eared, carnivorous type of individual, since his loosely adherent viscera, so well adapted to his four-footed manner of life, work at a great disadvantage in his new attitude; and Goldthwait has found that these type differences apply to the shape of the lumbar vertebrae no less than to the other components of body form.

B. *Variations Common to All Types.* In this group belong many variations of the viscera, which may be roughly classified as follows:

(1). Abnormal persistence of normal fetal structures.

(2). Alterations in development of normal fetal structures: (*a*) Arrest of development. (*b*) Excessive development.

(3). Absent development and malformations.

As an example of (1) may be mentioned the persistence of the caudal edge of the ventral mesogastrium, causing constriction of the duodenum, just reported by Harris; (2a) is represented by the undescended cecum or by a common mesentery for the whole intestine, and (2b) by such formations as Lane's kink. Under (3) would come such abnormalities as absence of a segment of intestine, or of the abdominal wall, or the presence of a true megacolon, as recently observed in a stillborn infant at the Harvard Medical School.

C. *Variations in the Development of the Ductless Glands.*

(1). Metabolic disturbances. (*a*) Organic. (*b*) Inorganic.

(2). Trauma.

(3). Other causes.

There is less known about this group than about the other two, but that the effects of varied diets upon the development and activities of the ductless glands is of real importance, with the resultant possibilities of alterations in function of the whole organism, is sufficiently evidenced by reports in the literature.

III. OBSERVATIONS ON POST-MORTEM MATERIAL.

Largely in Group IIB fall my observations on material obtained in Berlin through Prof. Pick at the Friedrichshain Krankenhaus and through Prof. v. Hansemann at the Virchow Krankenhaus during the fall of 1912 and the spring of 1913. Although more than three hundred autopsies were followed during the year in Berlin, Prague, Vienna, Hamburg, and other places, it was difficult to obtain the freedom desired, and even in Berlin various circumstances combined to prevent my obtaining satisfactory records in more than 218 cases. Undertaken as an orientation in the study of ptosis in the adult, the literature was avoided in order that any conclusions might be unprejudiced. Having reached certain conclusions, and having now reviewed the literature, it is hoped that by a study of an additional 300 cases in Europe during the coming six months, some valuable results may be obtained; for though it is doubtful if many new combinations will be recorded in a further series, a total of 500 autopsies should give a sufficient basis for establishing the normal limit of variations in unselected material,—a standard now sadly needed by which to judge findings in small groups of cases.

A. *Method.* To use a metaphor from deep-sea dredging, it seemed probable that from the application to the problem of a mental dragnet, in the form of a record of as many different facts as possible concerning a given case, whether seemingly related or not, there should result some light on the questions of cause and effect within the abdomen. The necessity of such a method of attacking the question is made the more obvious by a review of the literature. One may find nearly all the single facts of interest recorded, but thus far it seems that no one has attempted a correlation of the whole. The material was unselected, including men, women, and children, infants, and feti, from a length of 12 cm. to an age of 89 years, and the following observations are based for the most part on the first hundred of these cases. Notes were found valueless unless written in the interval between the examination of one case and the next, and it was necessary for purposes of comparison to record the observations obtained under 58 different headings. The work was done without interfering with the routine post mortems, the external measurements and observations being made before the autopsy commenced, and the viscera examined *in situ* during the routine examination of the thorax, the intestine being measured after removal from the body. After experience with about 30 cases, the following system was arrived at:

Four sets of cards were used: 1. External measurements, etc.; under this heading were recorded the case number, sex, age, occupation, disease, and height; also two measurements of the thorax, three of the abdomen, two of the diaphragm, the length of the small intestine and of the large intestine, and the condition of the rib cartilage and of the cartilage of the knee-joint. 2. General observations; such as development, nutrition, the amount of external fat, peculiarities of the thorax, abdomen, extremities, heart, lungs, and diaphragm, the presence of icterus, or ascites, the condition of the omentum, and the amount of intra-abdominal fat. 3. General intra-abdominal; as adhesions, presence of gall-stones, and remarks on the gall-bladder, liver,

spleen, pancreas, kidneys, adrenals, and genitalia. 4. Gastro-intestinal; adhesions, apparent length and disposition of the transverse colon, and notes on the condition of the stomach, pylorus, duodenum, ileocecal valve, appendix, ascending colon, hepatic flexure, transverse colon, splenic flexure, descending colon, sigmoid flexure, and rectum. It was not possible to obtain notes under every heading on each case, but even an average of notes under some 28 headings per case has supplied some interesting correlations. The adhesions proved difficult to record, and resulted in a mere note of presence or absence on card 4, while on card 3 a detail was given by means of numbering the organs from 0 to 17; thus in case 73, a man of 87, the figures 0-1-2-3-4-9-11 signify a mass of adhesions, including the liver, peritoneum, omentum, gall-bladder, duodenum, ascending and transverse colon. Case 54, a man of 60, with adhesions numbered 3-4-11, 2-4-11, is interpreted as a band from the gall-bladder across the duodenum to the transverse colon, and a band of omentum across the ascending and transverse colon, thus giving in this case practically the lesion to which Harris recently referred, and a form of Jackson membrane. In case 87, a man of 76, under 3-4-11, 1-7, and 2-13-14, we have three lesions, the band across the duodenum from the gall-bladder to the transverse colon, the appendix bound to the peritoneal wall, and a band of omentum across the descending colon and sigmoid flexure, or more properly speaking, the iliac colon.

B. *Thorax.* In measuring the thorax, two levels, determined by convenience, were used for the purpose of recording variations in the size of the lower thorax. In all newborn infants measured, the circumference at the tip of the eighth rib equaled or exceeded that at the lower border of the sternum; the upper level falls below the breasts of the female, and the lower is at a natural angle of the ribs, below which it is difficult to use even a steel tape with accuracy owing to the rapid decrease in size of the thorax as it merges with the abdomen. One does not often find the lower measure less than the upper until about 5 years of age, after which the narrowed chest increases in frequency, so that in the total of 9 children in which this double measurement was recorded in this first series, only 57% have the full normal infantile type, and in the total of 43 adults one finds the normal in only 33% of males and 37% of females. Thus we see that the full infantile thorax, at least in the working class from which this material is drawn, is slightly more common in the adult woman and the so-called tapering feminine thorax of the artist is rather more common in the grown man; in other words, the male thorax is abnormal in 67% and the female in 64% of these cases. In using these thoracic measurements, it is observed that all complicated calculations are avoided, and that, first, although both measures may be the same, both may be above or below the normal for a given height; second, when the upper measure is normal for a given height, the lower measure is really the more important, since it is a better indicator of internal derangements.

What is the significance of this change in thorax form? Harris, as later discovered, has concluded that nephroptosis in the adult runs parallel with this narrowing lower thorax, and that he can predict the position of the kidney by his measurements. He finds the kidney low in 56% of 126 adult women, and considers the low kidney the result of the narrowed body form. He believes that owing to the lessened capacity of the thorax, attributed by Goldthwait partly to postural depression of the diaphragm, the liver is forced downward, it in turn acting directly to depress the kidney; this is soon sufficiently low so that all further downward pressure acts above the centre of this organ, to force it still further downward, and thus such trauma as coughing tends always to increase the nephroptosis.*

Osler considers nephroptosis four or five times as common in women as in men. If this is so, according to Harris the narrowed chest should be much more frequent in women than in men; but from my figures the narrow chest is even more frequent in men than in women; also, a low liver is not incompatible with a high, firmly fixed, apparently normally placed kidney, and conversely, the kidney may be found low with the liver high. Therefore it would seem unlikely that Harris is wholly correct. Is it not more probable that ptosis is rather a cause than an effect of the narrowed thorax, since the incidence of the narrowed chest in the adult is only 65%, while ptosis may be put at 75%, with adhesions yet higher at 84%, and since this difference in relative frequency is even more striking the younger the child?

The causes of this narrowed chest would seem to me to be multiple, as for instance the limitation of body type, an unusually low attachment of the diaphragm on one or both sides, and intra-abdominal conditions such as ptosis and adhesions, in addition to the usual trauma of life, which include occupations, bad habits, and fatigue.

C. *Diaphragm.* In addition to the usual note on the highest level of the dome of the diaphragm on both sides, a second measurement was possible owing to the routine manner of the thorax examination employed by Prof. Pick. Since the thorax was always opened with a knife by a cut along the junction of rib cartilage and bone, it was possible to observe at what level this incision intersected the diaphragm, in other words, to register its height of attachment in this anterior location. A considerable number (40) of observations gave an average height of attachment on both sides at this point, of the seventh rib, with a variation from the sixth to the eighth, on one or both sides, and it seemed

* As a possible source of error in the clinical determination of nephroptosis in the adult is suggested the presence of the so-called corset lobe of the liver; often these little lobes have been seen which, post-mortem at least, would have seemed to have been in life a not improbable source of confusion to the diagnostician.

that this irregularity had some influence on the shape of the lower thorax.

D. *Adhesions.* Adhesions of some sort were present (including frank peritonitis) in about 86% of 77 adults, and 71% of 20 children; excluding peritonitis cases, adhesions or bands were present in 83% of 46 male and 86% of 27 female adults; in children, adhesions were present in 77% of 9 males, and 50% of 8 females, the youngest child in this group being 1 month and the eldest 16 years old with 50% of them between 1 and 8 years of age. Thus, though the initial rate is 22% higher, the adult male has increased his rate only 6% as against an increase of 36% in the female, and in the end the male has a 3% lower rate of frequency than the female. These figures are, of course, from a small number of cases, but they are suggestive in two directions: the female children average younger than the male, and it may be that part of the percentage difference in children is due to age, but this would not account for the final male ratio. On the other hand, even if the female child ratio were for age equal the male ratio, it would make even more striking the fact that at the age of 16 years this series of 100 cases had acquired 85% of its total supply of adhesions. Unfortunately, I have found no figures with which to compare these.

Morris, in a discussion of the location of adhesions, gives four groups in the following order of frequency: Gall-bladder, cecum and appendix, pelvis, and sigmoid. Robinson, giving a longer list of locations reverses this order, *i.e.* mesosigmoid 82%, pelvis 80%, ceco-appendix 72%, and gall-bladder 68%. My results correspond with those of Morris: In detail, the gall-bladder was involved in 58 cases, the transverse colon in 55, duodenum 39, omentum 31, ascending colon 29, hepatic flexure 23, peritoneum 23, liver 21, appendix 14, right kidney 6, cecum, splenic flexure and desecending colon 4, adnexa 3, sigmoid flexure 2, terminal ileum and rectum 1, small intestine, 0. Frank peritonitis from any cause was excluded from this list, and almost no cases except those of peritonitis had been operated upon. In a word, the upper right quadrant was the most common seat of trouble in the proportion of 140 to 19, which number is for the right lower quadrant.

Two other points of interest in regard to adhesions may be mentioned. First, in those cases in which the appendix seemed normal, the various adhesions were fewer, of a simpler type, less often multiple, and less often situated at the flexures; there were fewer gross changes in the gall-bladder itself, but more gall-stones (*i.e.* 19% of 42 abnormal, vs. 8% out of 24 with normal appendices), and slightly more abnormal knee joints (50% of 6 vs. 40% of 14 normal cases). Second, adhesions were absent in only three cases in a series of 25 adults. In two of these the double thoracic measurement was recorded, and in both the thorax was of the full infantile type with the nutrition good.

E. *Ptosis.* In my consideration of ptosis, the transverse colon was eliminated as being too loosely attached. Four organs were chosen for record,—the stomach, ileo-cecal valve, liver and right kidney. It was found that with slight pressure and a downward sweep of the extended hand from the cardiac toward the pyloric orifice, the lower border of the stomach could be closely approximated to the level obtaining in the upright position; the stomach was then called low if the greater curvature came below the level of the umbilicus, and in addition it was noted when the greater or the lesser curvature of the stomach came to the level of the promontory of the sacrum, about half way from the umbilicus to the pubes. The ileo-cecal valve, taken as a more definite point than the cecum, was considered low when its lower border came below the brim of the true pelvis, and the liver when its lower border came below the costal border. The kidney was considered low or loose when it could be moved freely for more than three or four cm. in a vertical direction.

Under these conditions, ptosis was absent in 10% and general in 22%, while one or more of the organs named were low in 75% of 30 cases. In 40 cases the liver was low in 45%, and in 50 the kidney low in 42%. The stomach and ileo-cecal valve were low in 50% of 63 cases, and in these the greater curvature of the stomach reached the sacral promontory in 27%. In another small series, the position of the stomach was recorded in 17 children and 71 adults as follows:

Children.	No.	% Low.	% to Promontory of the Sacrum.
Male	8	63	0
Female	9	88	44

Adults.	No.	% Low.	% to p. s.	% Lesser Curvature to p. s.
Male	42	74	17	2.38
Female	29	90	53	3.48

In all newborn children examined the stomach itself was above the level of the pylorus. In one adult woman and one adult man, the lesser curvature had reached the promontory of the sacrum. Between these two extremes, it will be seen that dilatation of the stomach, for true ptosis of the cardia and the pylorus is not very frequent, is not only distinctly more common in the female at all ages, but of a decidedly more severe type than in the male. This increased frequency in the female applies no less to the position of the ileo-cecal valve, as shown by the following:

Children.	No.	% Low.	% in Pelvis.
Male	9	22	0
Female	7	86	28

Adults.	No.	% Low.	% in Pelvis.
Male	41	41	0
Female	27	66	25

The extreme per cent. in female children is doubtless due to the small number of cases recorded, yet it goes to show that the low ileo-cecal valve is in the female congenital to a much greater degree than in the male. Smith, in a series of over 1000 infants less than three months of age, found the cecum in the pelvis in 10%, but in this 10% there were 34% males and 66% females; thus he found the condition about 100% more frequent in female than in male infants. There is an obvious discrepancy between my figures and those of Smith, but it is at least in some measure due to age differences. As previously stated, the stomach is always small and high at birth; in the same way, the kidney is always high and firmly fixed at birth, and it seems not improbable that some of these recorded differences are due to developmental adjustments of the peritoneum and mesentery, continuing during the first year or more after birth. In any event, it is certain that prolapse of the ileo-cecal valve is much more common in the female than in the male, and that there is less increase with age. In other words, a low, loose cecum is a female characteristic, and it has been explained by several writers on the basis of a physiologic adaptation for pregnancy.

Appendicitis in my series was no more frequent with than without ptosis, which suggests that in such cases it is less often a primary offender than is commonly supposed. It was also noted that the fulminating cases of appendicitis seemed to occur chiefly in children with particularly good health and general development, who showed no sign of pre-existing adhesions about the appendix or elsewhere in the abdomen. Turning back for a moment to the figures on adhesions, it will be seen that in point of frequency for age, adhesions precede the ptoses in the male, while the reverse is true in the female.

F. *Nutrition.* In the field of developmental adhesions about the intestine, my observations have been in accordance with the work of Eastman, Flint, Gray and Anderson, Harris, Konjetzny, Rjesanoff, and others, and there is one new point to add to the subject of duodenal obstruction. In addition to the cause mentioned by Bloodgood, and Codman, and the adhesions demonstrated by Gray and Anderson, one may not infrequently find on careful examination of the duodeno-jejunal juncture a slight anomaly of the ligament Treitz. Usually this ligament is so arranged that the first portion of the jejunum crosses the vertebral column from right to left before turning downward toward the pelvis; but in the cases in question, due apparently to a slight prolongation of the inferior aspect of this little ligament to the right, the duodenum terminates in a jejunum which may reach part way across the vertebral column, only to turn sharply on itself toward the right, following the direction given it by the anomalous ligament of Treitz. The result is obvious: there is provided in this developmental kink an excellent opportunity for the blocking of the duodenum by moderate pressure from a loaded stomach or other cause.

Dilatation of the duodenum was observed with constriction of the lumen by adhesions in 1 or 17.6% of 6 male, and in 1 or 20% of 5 female children; also in 5 or 8% of 65 adults. In 38 male adults dilatation was present in 16% and dilatation with constriction in 6 or 2.6%. In the female adult, dilatation occurred in 40% of 27 cases with constriction in 18.5%. This is in line with the increased frequency of the other intestinal conditions in the female.

Nutrition is apparently in some degree related to the narrow chest, since it is always good in the cases with a normal thorax and usually bad in proportion to the narrowing of the chest in the other cases, that is, with a decrease of the lower thoracic measure below that of the upper of 1 cm. or more. The position of the diaphragm may also play a part here, for out of 8 cases, it is recorded as low in 7 narrowed cases, and as normal in the only normal case. Thus it is possible that variation in the level of the attachment of the diaphragm may be a predisposing cause to ptosis and poor nutrition as well as to the narrowed chest.

My cases confirm the previous observations of others on the existence of a relatively short length of intestine in the tubercular and the asthenics (or static lymphaticus type), the hyperonto-morphs as Bean would call them. It has also seemed that in the absence of constricting adhesions an added length of intestine for a given body height is an advantage; but that in the presence of adhesions interfering with bowel function, added intestinal length becomes a positive disadvantage in proportion to its excess. Consideration of intestinal length is, however, always subject to the finding of almost 100% difference between maximum and minimum length in any unselected series of cases, thus requiring some care in interpreting results.

In a group of children in whom only three were noted as emaciated, these were the only three recorded as having adhesions about the hepatic flexure; they also had very short intestines, that of a boy of 16, for instance, being shorter than that of a healthy girl of only 8 months of age in the same group. These hepatic adhesions were of the developmental type. Is it not possible that in these cases the adhesion determined the lack of growth of the intestine through impairment of nutrition, and that in turn, nutrition was interfered with by the short intestine, thus establishing a vicious circle which could only be broken by relieving the adhesion?

In view of an equal sex distribution of joint lesions and of the preponderance in these lesions of liver and gall-bladder troubles, the sex distribution of gall-bladder changes may be mentioned. No stones were found in children, but the gall-bladder was noted as thick in two of four males, and all of four females. In adults, the gall-bladder was noted as thick in 50% of 26

males and 20 females, but stones were present in 23% of the males and 35% of the females, an increased frequency of 13% in the latter.

It is perhaps admissible to consider here a little end result evidence, as a side light on bodily function, in the shape of late changes in the cartilage in the ribs and of the knee joint. In 53 adults, the rib cartilage was normal in only 4, or abnormal in 92.5%, with 100% abnormal above 35 years of age. The youngest positive case was an emaciated boy of 16, dying from carbuncle of the lip, with the meninges of his brain afloat in pus. There were the usual calcium deposits above the vessels in the rib cartilage. The oldest normal adults were a thin man of 34, with tuberculosis, and a fat woman of 35 with acute post-abortive peritonitis. Aside from the calcium deposits about the vessels above mentioned, the common early change in the cartilage was an apparent drying and granulation of the whole cartilage substance.

The changes in the knee joint were of the type variously called senile, degenerative (Nichols), or hypertrophic (Painter). Occasionally, a slight hemorrhagic area was observed, but usually the change consisted in erosion or fibrillation of the cartilage, sometimes slight and superficial, and sometimes exposing the bone, allowing the formation of exostoses of varying size. The cartilage looked like the end of a twig which had been pounded with a hammer. Below the surface this cartilage almost invariably contained small millet-seed sized white granules, apparently of calcium. When slight, the cartilage changes always appeared first on the patellar surface, suggesting that the process involved the femoral and tibial surfaces only in the more advanced cases.

The knee joint cases are more interesting than those of the rib cartilage, showing as they do more apparent relationship to derangements of the biliary, respiratory, and circulatory systems. The joints were examined in 35 cases of the series of 100 on which this paper is based. If one joint was positive the other was examined, for both joints were always normal or always affected in more or less degree. Children were negative unless tubercular or otherwise clearly infectious. The youngest positive case was a woman of 21, and the oldest negative case a woman of 76. The sexes were affected equally, with about 62% positive, and 75% positive in 20 cases above 50 years of age. The most frequent age period was between 60 and 65, which included 25% of 33 cases. The following associated conditions were noted:—

Condition.	Knee Joints. Normal. No. of Cases.	%	Abnormal No. of Cases.	%
Adhesions	9	100	24	87
Total liver changes	9	11	23	52
Gall-stones	6	17	6	83
Gall-bladder changes	8	12.5	17	70
Intestines low or loose	9	89	24	38
Kidney low	9	11	17	41
Liver very low	9	11	23	26
Cirrhosis	9	0	23	13
Perihepatitis	9	0	23	13
Flexures involved	9	44	24	54
Adhesions, simple	9	56	24	29
Nutrition:				
Good	8	50	22	45
Poor	8	37.5	22	41
Emaciated	8	12.5	22	13
Intra-abdominal fat plus	8	12.5	22	9
Disease:				
Lung	9	33	23	48
Heart-Kidney	9	11	23	35
Other causes	9	56	23	17
Rib cartilage abnormal	9	77	24	96

In height the positive cases averaged less than the negative, and yet the total intestine measured longer. In other words, the intestine relatively was distinctly longer in the positive cases. It may also be noted that this extra length was in the small intestine, for the large intestine was slightly shorter in the positive cases. Likewise the positive group contained the two extremes in intestinal length.

It will be observed from the above table that chronic degenerative or hypertrophe arthritis is more common in a rather short, somewhat thin type of individual, with a relatively long small intestine and rather short large intestine, a type of intestine likewise proved undesirable as the result of studying the nutrition of a group of young children. The joint case has also a high proportion of biliary troubles, of adhesions of the severer grade or those about the flexures, and of low kidneys. Apparently uncomplicated ptosis and simple adhesions are matters of slight consequence. In addition, the positive case shows more rib cartilage changes and a higher incidence of respiratory and especially of cardio-renal complaints.

G. *Ductless Glands.* Two notes on the suprarenal gland may be of interest. 1. Severe extensive hemorrhages were seen in newborn children at the Virchow Hospital. It is suggested that in a non-fatal degree such suprarenal hemorrhage with consequent glandular tissue destruction may be a factor in the suprarenal deficiency of some adults. 2. In later childhood or adult life, as recently observed at the Harvard Medical School, the right adrenal, especially in proportion to the degree of narrowing of the thoracic outlet with the usual low position of the liver in these cases, is exposed to direct pressure between the firm liver and the much firmer vertebral column. This follows upon the fact that the right adrenal, almost wholly unprotected by fat, even in stout people, lies in a thin strip between these two firmer organs; the left adrenal, on the other hand, more triangular in shape, rests in a protective pad of fat, safe from pressure by any heavy organ.

Questions of diet in the control of the ductless glands, as illustrated by the work of Hunt, Schiotz, and others, are certain to engage increasing attention no less than a study of the effects of the action of the different elements

contained in the various drinking waters. It has, for instance, been noted in examining the records of 40 cretins at the Massachusetts General Hospital O. P. D., children's department, that many cases have developed in children who have been breast fed for unusually long periods of time, *i.e.* from one to two years, and that these children have been habitually constipated from birth, sometimes in extreme degree. In a total material of 231287 cases, cretins occurred with a frequency of about 0.06%. One family history may be quoted.

A short stout healthy-looking intelligent Jewess who at the time of inquiry was engaged in getting a divorce. She was the mother of two cretins, the younger of whom was about five years of age. Both of these children were habitually constipated and both had been breast fed for more than one year. She stated with conviction that the whole cause of her misfortune was her long-continued ever-present sexual hatred of her husband. In view of the action of psychic effects upon secretion of the stomach, it is certainly not impossible that intense sexual aversion may act to depress the function of the ductless glands during pregnancy, and various workers on animals have found that a small thyroid or other gland in the mothers always determines the presence of a small or deficient gland supply in the fetus.

IV. CLINICAL OBSERVATIONS.

On the evidence of some 300 O.P.D. records from the children's department of the Massachusetts General Hospital, is presented the following well-known type of sickly child with which clinics are overrun. Though in one the nervous system, and in another the circulatory or respiratory system may seem the chief offender, the gastro-intestinal tract appears always to be involved if only in as mild a form as constipation or diarrhea, and underneath these more or less superficial manifestations, there seems to run a family resemblance in the form of an ill-adjusted or defective organism. Something is out of tune, off color, and the result is bad. One very constant finding is an excess of soaps and fatty acids in the stools, especially in the group of chronic intestinal indigestion cases. These are usually difficult to treat, always have an excess of certain food components in the stools, usually fat, and on examination the pronounced big belly is in marked contrast to the small chest and extremities.

The composite history of these children reads like the index to a standard system of medicine: there is almost always something going on, but there are certain critical periods. Usually marked gastro-intestinal symptoms appear before the age of two months. The child may then disappear until perhaps at two years of age it returns with glands of the neck and a history of frequent coryza, colds, coughs, and middle ear trouble. Then come adenoids, and tonsils, and by five years of age it is almost sure to have added dental caries and perhaps pyorrhea alveolaris to the list. Meantime, it is likely to have had severe pertussis, bronchitis, furunculosis, eczema, or several of these complaints in addition to the usual exanthems; and in spite of all it continues to live and acquire yet more diseases.

On examination this child is pale and pasty if fat, or if thin, sallow with a yellowish tint to the eyes and the dry skin. The liver is felt 1 to 2 cm. below the costal border, with possibly some tenderness over the gall-bladder. The spleen may be enlarged and some degree of anemia is usually present. A blood examination may show in addition to the anemia a slight leucocytosis, with perhaps a relative increase of lymphocytes. Appetite is capricious, sleep poor, and eneuresis frequent. The stools will show constipation or diarrhea, frequently with a foul acid or sour alkaline character. Tuberculosis is frequently suspected. The extremities are negative unless cold and purple, and the thorax, excepting active processes of the lungs or heart, is negative if not flattened throughout or diminished below. There is a curious absence of abdominal palpatory findings, which is in marked contrast to the habitual constipation or diarrhea, and the usual report is: abdomen flat, negative. This absence of local symptoms has often been reported in the study of chronic adult sufferers presenting positive intra-abdominal Roentgen findings. When one adds to the previous ailments those of the nervous system, from tic to epilepsy, the list becomes truly formidable; but it is surprising to see how many of these diseases can be accumulated by one child before it graduates from the pediatric department; and with a little trouble one may follow some of these sickly children through the intervening years to the operating table at the age of 20 or 30 for some intra-abdominal, usually gastro-intestinal complaint.

Compare for a moment the clinical and post-mortem findings. Which would seem to be the more primary, the widespread pathological intra-abdominal lesions of varying degree common to all ages and both sexes, or the multitudinous often evanescent diseases of the child? A consideration of the preceding paragraphs would seem to indicate that the definite pathological findings may act to interfere with nutrition and bodily function to the extent of producing a marked lessened resistance, and consequent increased susceptibility to the diseases to which these children are always exposed.

V. DIAGNOSIS.

Knowledge which will permit of relieving some of the underlying conditions affecting the health of the sickly child or the semi-invalid adult depends upon an appreciation of the significance of body form in its differing types, and of the characteristic postures assumed by these sufferers no less than upon the accepted laboratory methods. In addition there is presented, in

the form of a simple double thoracic measurement, a new, and it is believed a valuable aid, in the recognition of the probable existence of definite intra-abdominal lesions which might otherwise go unsuspected until the application of better known diagnostic methods.

VI. TREATMENT.

The treatment of these cases is essentially non-surgical, in that though an operation may be imperative for the relief of a constricting adhesion or other definite lesion, any approach to a cure is only reached through weeks and months of pre- and post-operative medical or orthopedic care, during which body form must be altered, posture corrected, and diet regulated to stimulate a natural organo-therapy. Failure with milder methods is, of course, the indication for the use of gland extracts or other more radical attempts at cure, but it is certain that no cases are so hopeless as to be incapable of some measure of improvement. The most important single point of attack is the narrowed lower thorax. If this can be restored to the normal full infantile type, the case will show improvement no matter what the intra-abdominal complications. The second indication is to provide the patient with a natural abdominal bandage, replacing the familiar "clam-belly" by firm and efficient oblique and transverse abdominal muscles which will hold his loose viscera where they belong in the now enlarged upper abdominal cavity. In this connection it may be observed that the rectus is less efficient for the purpose than the muscles just referred to, and becomes still less efficient as a binder in proportion to the increased depth of the thorax. The third point of importance is to provide the patient with back muscles strong enough to maintain the normal shape of the thorax under any and all stresses of life to which he may be subject.

A more complete consideration of diagnosis and treatment is reserved for the future.

VII. CONCLUSIONS.

1. Adhesions, ptoses, and other demonstrable physical defects are of very common occurrence at all ages in both sexes, but the frequency of these defects in the adult is not markedly greater than in the child.

2. It is not improbable that such defects may stand in a causal relation to some at least of the disabilities of the child and the adult.

3. An anomalous ligament of Treitz may be a factor in obstruction of the duodenum.

4. A simple double measurement of the thorax is presented, which is likely to prove an aid in the recognition of certain intra-abdominal abnormalities. This measurement is in a variable degree an indicator of physical efficiency, and is useful after the age of five years.

5. The treatment of developmental defects is primarily non-surgical, and if properly carried out in the child is preventive, in that it will result in creating an adult not only personally more efficient, but one who may entertain the hope of having physically more perfect children.

6. "The problem is comprehensive enough to accept all the assistance it can through gymnastics, bandages, regulation of diet, and habits, and still furnish an abundant per cent. of human wreckage (Lane) for the surgeon to attempt to reclaim" (Schachner).

In closing it is a pleasure to express my indebtedness to Prof. Charles S. Minot and to Dr. Goldthwait for their continued interest and valuable suggestions during the progress of this work.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

THE THIRTIETH MEETING HELD AT THE BOSTON MEDICAL LIBRARY, MARCH 27, 1914.

FRITZ B. TALBOT, M.D., Secretary.

DR. MARSHALL FABYAN read a paper entitled,

BACILLUS OF CONTAGIOUS ABORTION.

ABSTRACT: The present efforts being made for the production of clean milk. As scientific investigation advances other factors of unknown importance appear. Dr. Theobald Smith nearly twenty years ago reported lesions occurring in guinea-pigs inoculated with cow's milk, as due to some unknown cause. The close similarity of these lesions to those produced by tuberculosis in the guinea-pigs, was remarked upon. In 1910 we met with similar lesions in guinea-pigs inoculated from the placentae of aborting cows. After much difficulty an organism was isolated which proved to be identical with the bacillus of contagious abortion discovered by Bang and Stribolt in 1895.

The lesions occurring in guinea-pigs are of extraordinary character, involving the spleen, lymph-nodes, liver, lungs and in fewer instances, the kid-

ney, testes, bones and special organs,—eye. These lesions are composed of tubercles made up of large epithelioid cells, having large poorly staining nuclei, containing little chromatin, and a small amount of protoplasm. Small round cells, giant cells and occasionally leucocytes may be present. The bone lesions occur in about 25% of inoculated animals. These include enlargement of the extremities about the joints, and general enlargement of one or more ribs. The process apparently starts in the marrow and stimulates the bone to an extraordinary proliferation. A diseased rib may be two or three times the size of a normal one. No pain seems to accompany the enlargement.

Isolation of the organism from material: When in small numbers or where probable contamination, best to inoculate guinea-pigs. Pure cultures may be obtained from the spleen of such animals after a period of two or more months. Peculiar cultural conditions required. Partial tension of oxygen. Nowak's method,—utilizing the absorptive power of Bacillus Subtilis in a sealed jar. Successful growth by sealing the culture tube itself. After a few transfers the organism becomes aerobic, a property not lost by further animal inoculation. The peculiarity of growth prevents its detection in the usual methods of enumerating the number of bacteria per cubic centimeter of milk.

Milk is a constant source of supply for further infection among dairy herds. Examination of samples of milk from twelve cows in a prize herd, including two which had recently aborted. The abortion bacillus was found in the milk of one which had aborted two weeks before at the eighth month, and in the milk of another which had dropped a normal calf eleven months previous, and had therefore probably given infected milk continuously for nearly a year. Other investigation has shown that only one teat may be shedding the organism. Macroscopically, the udder may appear entirely normal on section.

Schroeder has stated that 10% of market milk is infected with the abortion bacillus.

Method of testing for the presence of the abortion bacillus or its antibodies in cows: Guinea-pig inoculation, agglutination, complement fixation, and the inoculation of a filtrate similar to tuberculin, called "Abortin." Complement fixation has been tried with human serum with some success. Larson and Sedgwick have recently reported having tested by this method, the sera of a number of women who had aborted. They obtained more positive results to the abortion bacillus than to syphilis. They examined the blood of 425 children and found 73, or 17%, positive to the abortion bacillus. They speak of this 17% as having lesions of the osseous system, and in most of them the clinical diagnosis of tuberculosis and rickets had been made.

Undoubtedly the opportunity for the frequent ingestion of the abortion bacillus by man is fairly well established. The question remains as to whether under certain special conditions, such as pregnancy or lowered resistance, this organism is able to gain entrance and produce pathological lesions.

DISCUSSION.

Dr. Marshall Fabyan: In my conclusions I said it is a question whether this organism is able to gain entrance, and produce pathological lesions. I think both of these points should be considered.

Of our laboratory animals experimented upon, the guinea-pig, rabbit and mouse all showed some pathological changes. We were able to reisolate the bacillus from the rat after nine weeks, from the pigeon after eighteen weeks and from the monkey after a period of thirteen weeks, although in none of these animals were any lesions subsequently observed either macroscopically or microscopically. It, therefore, seems apparent that the bacillus abortus may exist and multiply in the body of certain laboratory animals for weeks without producing evident pathological lesions.

Dr. Lewis W. Hill read a paper entitled,

REPORT ON LEUCOCYTIC INCLUSION BODIES.*

Dr. John B. Hawes, 2nd, read a paper entitled,

UNDER WHAT CONDITIONS IS THE DIAGNOSIS OF "TUBERCULOSIS" IN CHILDREN JUSTIFIED?†

DISCUSSION.

Dr. Cleaveland Floyd: I think this is a very important subject and that we should be very grateful to Dr. Hawes for bringing it up. With regard to this particular case, I think it is always of value to make discussions pointed and definite, and I see no reason why we should not so discuss the case which he has presented tonight. I happen to be one of the men to disagree with Dr. Hawes in this particular case on account of the evidence we gathered, which was as follows: A child, as he says, coming from a poor quarter, with a grandmother who has been sleeping with the child for some weeks or months, who later died with tuberculosis in Tewksbury. The child, according to my point of view, was somewhat under-developed and undernourished. The mother at the first examination denied that the child had night sweats, that the child had a cough or any other sign of the disease, but on urging, she admitted what previously she had denied,—that all these symptoms were present. It seems to me that there was definite evidence of consolidation at the right apex, paravertebral dullness and d'Espine's sign, with faulty expansion on the right side, all of which seemed important evidence of a process going on in that lung. This child's temperature was taken a number of times in the afternoon as well as in the morning and there has always been a temperature, varying from 99 to 99.4° F. With regard to the von Pirquet test, this is a very interesting point. Two tests were done at other clinics and were negative. I did one myself subsequent to these and got a perfectly positive result, the diameter of the inflamed area being 1½ c.c. I do not believe that there was any sensitization of the child as the previously inoculated areas did not show renewed inflammation. A number of German observers believe that we have no right to call a von Pirquet test negative unless we have done the test at least three or four times with a negative result in each. This child has been followed by the Boston Consumptives' Hospital since she was first examined. She has been excluded from school on our diagnosis, has been out of school now for three months, has gained six or seven pounds in weight, looks very much better.

The mother is interested in the child and is now doing something for her. From my point of view that child had tuberculosis of the lungs; I think she

* See page 792.
† See page 784.

also had enlarged bronchial glands. I think the d'Espine sign is not one on which to place too much importance. In a recent study of some hundred cases to demonstrate what signs are met with in the bronchial glands, I have about come to the conclusion that the d'Espine sign is one of minor importance. In regard to the importance of the x-ray, I believe that where the x-ray man who knows something about lungs tells you that the case is a questionable one, you had better put it down as tuberculosis. I have seen a number of men working in this particular field, and their ideas of what constitutes a normal lung and normal glands are very variable. In other words, I do not believe that their standard of normal is a correct one. I agree with Dr. Hawes that the early diagnosis of tuberculosis is one of prime importance. I am sure the child is much better today than she was three months ago.

DR. WALTER C. BAILEY: After looking at this subject from the point of view of adult tuberculosis and realizing the lack of progress that we are making in the cure of pulmonary tuberculosis in adults and seeing the constantly increasing numbers coming to us each year with pulmonary tuberculosis and wondering what is to be done, I got interested in the question of tuberculosis in children and childhood infection, and again in reading and finding a good deal of evidence for the theory that practically all adult tuberculosis is the result of infection in childhood. it therefore becomes a general question, and I wouldn't go into this case excepting for one aspect of it, and that is the contact, —the chances for this child to become infected. Now the grandmother, who had lived with the family, had died, and the hospital report at Tewksbury gave the diagnosis as acute miliary tuberculosis. An uncle has died in Syria within a few years, who lived with this family for a period of four or five years, and during this time had one or two hemorrhages, so that he was an active tuberculous source. The father looks very much as if he had tuberculosis, although after one examination the diagnosis was negative. He had a chronic cough at least, and he looks as if he had tuberculosis. I personally believe from clinical experience that it is impossible for a child to become associated for any length of time in a tenement house with an open case of tuberculosis and not become infected. To back up this statement you have the figures published by the Royal German Board of Health, work done under the leadership of Dr. Weber, and very likely some of you have seen it. He published a series of 171 unselected cases coming to autopsy. In 22.5% of these cases viable tubercle bacilli were recovered. Between the ages of two and three, 38.8% gave viable tubercle bacilli. If you get such a large percentage of cases with viable bacilli in unselected cases, what must you get in selected cases? So it seems that we must look at this thing, not as an individual diagnosis, but as an epidemic disease. We all know that in a typhoid epidemic when one is called to see a person who has a fever, rose spots, enlarged spleen, etc., he does not want to stop and make all the tests, but you would say right off, it is typhoid and take all precautions and make your further tests afterwards. Now I think it is only fair to do the same thing in tuberculosis. It is much more of an epidemic than typhoid, and we are never going to get anywhere in stamping out the disease unless we tackle the child problem. This is my idea and very strong feeling. As regards keeping the children out of school, I think here we have one of the most valuable clubs, because you can talk to the mothers and fathers until you are black in the face about bringing the child to the clinic, etc., but when you take that child out of school, they sit up and take notice, and it will surprise you, I think, to learn that up to two or three years ago, it was impossible to make a diagnosis of tuberculosis in a child at the Boston Consumptives' Hospital unless an active process was found in the lungs,—tubercular râles. Now that has been changed and we are making that diagnosis more frequently,—perhaps we are not hitting the bull's eye every time, although I think we did in this case, but at least we are not going backward and we are not standing still. We are calling attention to these facts. We are working toward keeping these sick children out of school. We are going to raise a rumpus among the parents and we are going to try to establish open-air schools. Although we make mistakes occasionally, the principle is right that we ought to be able to make a diagnosis in children with the signs and symptoms which have been spoken of tonight, especially with a history of contact. I want to say a word or two for the derided d'Espine sign. I believe myself it is a valuable sign if you include not only the increased voice sounds over the dorsal vertebrae, but also along the paravertebral lines. We know we can get enlarged glands from measles and whooping cough, etc., but if enlargement persists for six months or a year and the child is going down hill, I think you are fairly safe in calling it tuberculosis. One word with regard to nomenclature. We never will get anywhere unless we throw out the old teachings and call the disease by its right name. We would have been much farther ahead today if the word tuberculosis had been used years ago instead of scrofula. The same is true of the term physiological apex. These two terms belong in the same waste basket.

DR. W. B. SWIFT: I would like to ask Dr. Bailey if in the cases mentioned, where 28% were found to have viable tubercle bacilli, whether there had been any history of exposure previously in those cases.

DR. BAILEY: (Answering Dr. Swift.) The figures given were from a series of unselected cases. There was no statement made whether or not these children had been exposed to infection.

DR. R. M. SMITH: I would like to say a few words, as I was one of the physicians to examine this child. I am perfectly sure that the technic of the von Pirquet tests that were negative was performed as carefully as could be done, and was the same as was used in other cases which proved to be positive, that is, we had really negative von Pirquet tests. The child is getting better, and I believe that she would have gotten better if the diagnosis of tuberculosis had not been made. The treatment is very much the same as in any case of a child in a poor general condition. I think she has suffered perhaps from being deprived of three months of school. Not too much importance can be attached to the interpretation of x-ray plates. The presence of enlarged bronchial glands does not always necessarily mean that the child has tuberculosis. If we accept this sign as positive evidence, I think we are going one step farther than we are justified. I remember a child who had evidence of enlarged bronchial glands, later proved to exist by autopsy, but on physical examination and x-ray examination

showed no tuberculosis. That child had an acute endocarditis with bronchial glands. I have seen cases of chronic influenzal infection which have been followed for from five to seven years, which showed persistent enlarged bronchial glands. I think the d'Espine sign as an evidence of enlarged bronchial glands is very much worth while, but it does not seem enough to me to justify the diagnosis of tuberculosis. There is one other point about the x-ray. It does not seem to me that a positive x-ray plate is sufficient evidence upon which to base a diagnosis of tuberculosis. I saw a patient today who is interesting in this connection. The child came to us six months ago,—she had been exposed to tubercular infection. We went through all the usual procedures and decided that she did not have tuberculosis although the x-ray interpretation of the plate said she had a tuberculous process in her lungs. She was given the ordinary directions as regards hygiene and food which have not been followed very well. She reported today, six months later. She has gained seven pounds in weight and is in perfect general condition. Three of us examined her today and found her lungs absolutely negative in every way. I think in the end it will really be better if we say very frankly that many of the doubtful cases are not tuberculosis and treat them according to rules of general hygiene. It is not quite fair to say that every suspicious case has tuberculosis, and in the long run we are going to lose the confidence of the community if we continue to make the wrong diagnosis.

Dr. F. B. Talbot: I think the trend of this discussion is very promising for the diagnosis of tuberculosis in the future and I am very glad to see that the men who are dealing with tuberculosis in childhood and infancy believe it plays an important part in adult tuberculosis. I think that more and more diseases of adult life will be found to originate in childhood. The various points about this particular case have been discussed so completely that there is no necessity for my saying any more about it, but the discussion has been entirely about tuberculosis contracted by one person from another, and I would not have us leave here tonight without mentioning the fact that it can be gotten from milk, and I have seen a number of cases where the disease has come from the milk taken by young children, and think that this is a very important factor in tuberculosis in children under four years, in fact as important as tuberculosis caused by personal contact.

Dr. H. I. Bowditch: I would like to say one thing in regard to the d'Espine sign which may be of interest to you. About five years ago I began marking charts of patients at the out-patient department of the Boston Consumptives Hospital, with especial relation to d'Espine's sign in childhood. Since then I have with very few exceptions found that when that sign (as I make it) was strongly positive and remained present, that tuberculosis did not exist. The child usually showed some sign of pulmonary tuberculosis later and the diagnosis became positive. Of course this sign varies under different hands. What one man calls positive another may say is negative.

I think when we have an agreed on nomenclature of what these signs and symptoms mean in a child that we will be much farther on the road than we are at present. I should like to ask Dr. Smith what the treatment would have been in the case under discussion if it had not been diagnosed as tuberculosis.

Dr. R. M. Smith: (Answering Dr. Bowditch.) It is a question of general hygiene and supervision. Many children who present evidences of being below par and who are treated by coöperating with the school nurses and by frequent visits to see if the rules laid down are carefully followed, get back soon into a favorable condition. It is very much the same kind of treatment as for tuberculosis, but does not involve exclusion from school.

Dr. J. L. Morse: I came here tonight without the slightest idea of what this paper was to be about and without ever having exactly formulated my ideas on the subject. If I had written the paper myself I could not, however, have expressed them as well as Dr. Hawes has expressed them for me. My attitude in dealing with students has come to be much the same regarding tuberculosis as syphilis. Every time a student sees a baby with snuffles from a cold in its head, a pimple on its face, or an erythema from wet diapers, he says it has syphilis, and every time he sees a child with a cough or a temperature above normal he says it has tuberculosis. I find it necessary, therefore, to devote a great deal of time to prove to them that these symptoms do not necessarily mean that they have either one or the other. In my own experience, when a child sweats at night, instead of thinking of tuberculosis, I find out whether the windows are open or not, how many blankets it has over it, whether it has adenoids, and a few other things of that sort. Now as to fever, and whether a temperature of 99 or 99.4° F. is a fever. I am inclined to think that if we took a series of normal children and took their temperature right through the day we would find, especially if they had been playing hard or had been excited, that they had a temperature above 99° F. a good deal of the time. That is, a slight elevation of temperature is a very common thing from minor causes, and a little temperature does not necessarily mean tuberculosis. My point is that when a child has a slight temperature, the chances are that there is some other explanation for it than tuberculosis and that tuberculosis should be thought of only when every other cause has been excluded. The cause of the temperature is much more likely to be a little adenoid infection, some infection in a sinus, a mild pyelitis, trouble in the ears, or something of that sort, than tuberculosis. A word as to d'Espine's sign. This almost always means enlargement of the tracheobronchial lymph nodes. The fact that they are enlarged does not, however, necessarily mean that they are tubercular. X-ray pictures do not always prove positively that they are enlarged, for unless the observer understands how to interpret the findings correctly, much confusion is likely to result. Coming to the tuberculin test, I have always felt that a negative tuberculin test, carefully done, was pretty good proof that a child did not have tuberculosis, and I am still inclined to feel so. Another thing to be remembered in connection with the tuberculin test is that the combination of signs in the lungs and a positive tuberculin test does not prove that the process in the lungs is tuberculosis. I have seen a large number of children condemned to death by house officers on account of such a combination, and the children recover completely afterwards.

Dr. Marshal Fabyan: Apropos of what Dr. Talbot has said about infection from milk, perhaps it

would be of interest to the society to know that in the last few instances of the tuberculous material sent us, consisting of tonsils and cervical glands of young children, the bovine strain has been isolated.

In regard to what Dr. Morse has said concerning the tuberculin test, I would mention that we recently received a large tuberculous gland which had been removed from the neck of a cow. This cow was three years old and had received the tuberculin test twice yearly without ever giving a positive reaction.

DR. CLEAVELAND FLOYD: I think a recent article by Dr. Hess of New York is pertinent here. A series of babies in a ward, were tested on entrance with tuberculin and were found to be negative. They were under the care of a nurse, who was later found to have a well marked case of active tuberculosis. She was discharged. These children were again tested at the end of three months, and a large proportion of them, who had been under that nurse's care, gave a definite positive reaction, showing how soon, at least in this series of cases, these children were sensitized to tubercle bacillus.

I was much interested in Dr. Morse's remarks about temperature. I think it is quite an important sign where it occurs in the morning and afternoon, and especially if you can rule out infection of the urinary tract, ears, etc. Again, you see a large number of children who in spite of overexcitement do not have a temperature. We have felt that persistent temperature in the afternoon, and frequently mornings, was of considerable importance as pointing to an active process in the lungs.

In the work that I have been interested in, the x-ray man has not known what the clinical ideas were on the patient at all. The case has been brought to him to x-ray. We have gotten his opinion before he knows about the case. This is the only way to get a fair and impartial interpretation of the plates. In some cases the d'Espine sign may be due to enlarged thymus glands.

DR. J. B. HAWES, in closing: I have little further to add to the discussion, except that I feel justified in having presented this paper in that it has brought up such valuable discussion, which, after all, is the important part of any paper. Dr. Bailey has a very broad and idealistic point of view in this entire matter; he goes rather further than I can at the present time, at least. Dr. Richard Cabot has said that if you want to get attention drawn to any one subject, "you must raise the devil of a row" about it. I think, therefore, we owe a vote of thanks to the little patient who has been the innocent cause of bringing up this matter before us.

DR. W. B. SWIFT read a paper entitled,

A VOICE SIGN IN CHOREA.

ABSTRACT: A definite and final description in literature of the choreic voice found absent to date. Methods of approach unscientific. Review of literature from 1841. Brief presentation of what the vocal kymograph can register. Demonstration of voice curves. Deductions therefrom as evidence of a new sign in chorea elicited quickly with an easy technic. (For full report see *American Journal, Diseases of Children*, 1914.)

DR. W. B. SWIFT, in closing: I wish to add in closing that the length of the test is merely to bring out more noticeably the voice change. In the talking voice the same change is so short in duration as hardly to be observed without difficulty. This may account for the vagueness in description and the absence of its observation up to date in the literature, and the reason it was found more definitely here was on account of the new method which was used,—the prolongation of the sound and the vocal kymograph.

Book Reviews.

Orthopedics in General Practice. By PROF. ADOLF LORENZ, Regierungsrat, director of the Imperial University Ambulatorium for Orthopedic Surgery in Vienna, and DR. ALFRED SAXL assistant surgeon in the Imperial University Ambulatorium for Orthopedic Surgery in Vienna. Authorized translation from the German by L. C. PEEL RITCHIE, Ch.M., M.D., F.R.C.S., Edin.; late voluntar arzt in the Imperial University Ambulatorium for Orthopedic Surgery in Vienna; tutor in clinical surgery, University and Royal Infirmary, Edinburgh. New York: William Wood and Company. 1913.

The preface by Prof. Lorenz points out many of the conditions in which a knowledge of what may be called orthopedic pathology may be of great help to the internist. Lorenz says that his friend, Prof. Lothar von Frankl-Hocwart, has expressed a wish that some book be written on the subject of Orthopedics in Medical Practice, and that with the editorial collaboration of Prof. Lorenz, Dr. Alfred Saxl has undertaken the fulfillment of this wish.

There follows a discussion of the various orthopedic conditions which may accompany or predispose to diseases of the different systems of the body, namely, respiratory, circulatory, digestive, urinary, nervous, locomtor, etc.

The book serves to call attention to a wide range of diseases in which familiarity with the commoner orthopedic lesions may be of great value to the internist. One gains the impression that the authors believe that these static conditions and structural skeletal changes may actually be the remote cause for diseases heretofore supposed to be primary in the organs affected. There is a growing tendency of orthopedic surgeons to agree with this belief.

The book is intended chiefly for internists, and the orthopedic conditions concerning which there is a difference of opinion as to treatment, etc., are not dogmatically discussed. The wide familiarity with the literature, chiefly European, is shown. We commend the book to the internist

and general practitioner. We should be grateful to Dr. L. C. Peel Ritchie for his careful translation of the book into English.

A Clinical Manual of Mental Diseases. By Francis X. Dercum, M.D., Ph.D., professor of Nervous and Mental Diseases, Jefferson Medical College, Consulting Neurologist to the Philadelphia General Hospital, etc. Philadelphia and London: W. B. Saunders Company. 1913.

This work has been prepared from a purely practical point of view to enable the general practitioner, the family physician, to recognize mental diseases in their early stages, to know what to do under given conditions, when to commit and when not to commit the patient to a hospital and how to treat him at home or elsewhere outside of an institution, when this is practicable. In this the author has been unquestionably successful, giving excellent clinical pictures of the different forms of the disease and many details of treatment, all of which cannot fail to be of real help in diagnosis, prognosis and treatment, including a number of important points which have escaped other writers. His nosology, however, adds more new and unnecessary terms to confuse the learner, his diagnosis is not wholly complete, as in the matter of the differentiation between manic states and dementia precox, and in his attack upon the teachings of Freud he fails to credit psychoanalysis with many of its advantages in diagnosis and treatment. A chapter on methods of mental examination, also, would not have come amiss. But these are minor defects beside the real and practical merits of this useful manual of mental diseases.

Operative Surgery. For Students and Practitioners. By John J. McGrath, M.D., clinical professor of surgery, Fordham University; professor of operative surgery, New York Post-Graduate Medical School; consulting surgeon to the People's Hospital; visiting surgeon to the Harlem and New York Foundling Hospitals; Fellow of the New York Academy of Medicine; member of the American Medical Association. Fourth revised and enlarged edition, with 364 illustrations, including full-page color and half-tone. Philadelphia: F. A. Davis Company, Publishers. 1913.

Since the previous edition many new illustrations appear and much new matter has been added to the text. It is probably true that every teacher of medicine develops, in the course of time, certain individual methods in the presentation of his particular subject, which appeal to him more than the methods of other teachers. He, therefore, finds it desirable to assemble in a text-book the facts and theories in the manner in which he has been able to present them most convincingly to his students. This is the reason why many text-books on both medicine and surgery appear; not because they add anything definitely new nor that they contain essentially new procedures, nor even at times that they represent a ripe personal experience. Dr. McGrath has caused to be published a compact, well printed and well illustrated volume of eight hundred pages. It seems to contain all that is essential for the average student. Operations which come under the general class of emergencies are described with much detail. The book is divided into ten parts, based on an anatomical classification. On the whole, the volume does not present features which distinguish it particularly from a considerable number of well known text-books.

The Operating Room and the Patient. A Manual of Pre- and Post-Operative Treatment. By Russell S. Fowler, M.D., chief surgeon First Division German Hospital; surgeon, Methodist Episcopal Hospital; consulting surgeon, Hebrew Orphan Asylum, Brooklyn, N. Y. Third edition. Philadelphia and London: W. B. Saunders Company. 1913.

Dr. Fowler has in this edition written a volume of six hundred pages, profusely illustrated. It includes a list of instruments and dressings commonly employed in some eighty surgical procedures and completed by an extensive index. The numerous illustrations, most of them taken from the author's text-book on surgery, are in a very large measure half-tones, well chosen and satisfactory. The printing is clear and sharp and the book is of convenient size. The illustrations of bandaging are particularly to be commended. In his preface he says, "It has been my purpose to simplify the technic as much as is compatible with careful work and to present the subject in a terse, yet I hope, readable manner."

He summarizes the underlying principles of surgical treatment as follows: "Careful anesthesia, exact hemostasis, asepsis, rest of the injured part, use of the rest of the body, feeding advanced to normal as fast as the anesthetic weakened stomach can care for it, and the following of the general rules of hygiene."

These underlying principles are unquestionably correct. The author has been unusually successful in his effort to make the book terse, and it may be unhesitatingly recommended to students and to young surgeons.

THE BOSTON

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MEDICAL LEGISLATION. ANTI-VACCINATION AND THE BAGSHAW BILL.

IN the issue of the JOURNAL for April 2 (p. 559) we published a communication from Dr. George W. Gay, in behalf of The Massachusetts Medical Society, on "Anti-Vaccination and the Legislature"; and in the issues for April 23 (p. 664) and April 30 (p. 697) we commented editorially on the Bagshaw vaccination bill (House No. 1018), which has been passed by the Senate of the General Court. In another column of this week's JOURNAL we publish a second letter from Dr. Gay, describing in the recent experience of Niagara Falls the inevitable result of anti-vaccination legislation of the type of which the Bagshaw bill is an example. Another instance of such experience may be cited in the case of the state of Minnesota, which, with voluntary vaccination and a population of 2,000,000, had in 1912 2320 cases of smallpox, while Massachusetts, with compulsory vaccination and a population of 3,400,000, had in the same year only 218 cases.

Meantime the passage of the Bagshaw bill by the House has fortunately been delayed. At its session on May 7 the House voted to postpone action for one week in order that the replies made by the State Board of Health to a series of questions on vaccination, addressed to it by the legislature, might be printed and examined by the members. In these replies the board states that if any legislation affecting vaccination be needed, it should be more, not less, stringent than at present. The board also says that it is emphatically not desirable to enact a law requiring any particular method of vaccination to the exclusion of other methods. To the question whether vaccination is a harmful procedure, and if not, what is its chief danger and how may it be obviated, the board replies:—

"Vaccination is not in itself a harmful procedure, but the wound may be susceptible to infection from without if it is not properly cared for and protected. Vaccination is always to be considered as a minor surgical operation to be carried out under conditions of strict asepsis."

At a recent meeting of the Boston district of the Massachusetts Homeopathic Medical Society the following resolution relative to the anti-vaccination bill was unanimously adopted:—

"Resolved, That this society is strongly opposed to the bill now before the legislature allowing unvaccinated children to attend the public schools, knowing that such a law would be a serious menace not only to such pupils, but to the public at large."

The attitude of the regular profession on the subject is of course unquestioned. It is earnestly to be hoped that the House will not enact into law the pernicious provisions of the Bagshaw bill.

Since the above was in press, the House has defeated the Bagshaw bill by a vote of 132 to 53.

FOUR NATIONAL MEDICAL MEETINGS.

THE tenth annual meeting of the National Association for the Study and Prevention of Tuberculosis was held on May 7 and 8 at Washington, D. C. At the opening session, Dr. Charles J. Hatfield, of Philadelphia, reviewed the progress of the past decade, since the organization of the society. During this time there have been established throughout the country over 2000 anti-tuberculosis agencies, including 1200 anti-tuberculosis associations, 550 sanatoria and hospitals, 410 dispensaries, and 250 open air schools and classes. At the session on May 8, Dr. Edward Archibald, of Montreal, read a paper on the application of pulmonary surgery to the treatment of tuberculosis; and the Massachusetts method of caring for consumptives was described in papers by Dr. Walter C. Bailey and Dr. John B. Hawes, 2nd, of the

board of trustees of the state hospitals. Dr. W. L. Moss, of Baltimore, and Dr. S. H. Gilliland, of Marietta, Pa., described their experimental investigations on the possible immunization of cattle and children against tuberculosis. At the closing session the following officers were elected for the ensuing year.

"Dr. George M. Kober, Washington, D. C., was elected president and Surgeon-General Rupert Blue of the public health service was made a member of the board of directors. Other officers elected were: Dr. Lee K. Frankel of New York and Dr. Jarvis Barlow of Los Angeles, vice-presidents; Dr. Henry Barton Jacobs of Baltimore, secretary; and William H. Baldwin of Washington, D. C., treasurer. Seattle, Wash., and Chicago were urged for the meeting place next year, but no decision was reached."

The American Neurological Association held its yearly meeting from May 7th to 9th, inclusive, in Albany under the presidency of Dr. Henry Hun. Papers of importance were read on surgery of the central nervous system and on more recent methods of treatment of late nerve syphilis.

The annual meeting of the American Society for the Advancement of Clinical Investigation was held in Atlantic City, N. J., on May 11 and 12. Papers were presented by Dr. George Draper, of New York, on the treatment of tabes by intravenous and intraspinous injection of salvarsan; by Dr. O. M. Schloss, of New York, on blood changes produced by feeding foreign protein; and by Dr. E. W. Bridgman, of Baltimore, on the third heart sound.

The annual meeting of the American Association of Physicians was held in Atlantic City on May 12 and 13. Papers were presented by Dr. Simon Flexner, of New York, on the isolation of the organism of poliomyelitis; by Dr. Franklin W. White and Dr. Ralph D. Leonard, of Boston, on the use of the x-ray in the diagnosis of cancer; by Dr. Julius Fridenwald, of Baltimore, on the results of a series of one thousand cases of cancer of the stomach; and by Dr. Richard P. Strong, of Boston, on the transmission of the virus of verruga to the lower animals. At the closing session, Dr. S. J. Meltzer, of New York, was elected president of the Association for the ensuing year, and Dr. Henry Sewell of Denver, Colo., vice-president. The remaining present officers were reëlected. A full report of the proceedings of this Association will appear in a later issue of the JOURNAL.

THE MEDICAL SITUATION IN MEXICO.

DURING the uncertainty pending mediation in Mexico active hostilities continue between the federal and constitutional forces about Tampico, with considerable casualty on both sides. The United States occupation of Vera Cruz is complete, and comprehensive plans for the sanitation of the city are already being carried out. Surgeon-General Gorgas has detailed Major T. C. Lyster and Major Robert A. Noble to undertake this work, both of whom have had experience in the Panama Canal Zone. The Public Health Service has detailed Dr. Gregorio Guiteras to Tampico and Dr. R. H. von Ezdorf to Vera Cruz. Twenty American Red Cross nurses have also been ordered from Washington to take charge of the nursing in the military hospital at Vera Cruz. At Mexico City the American civil hospital is still open, and the American physicians and nurses remain in charge of the patients. At Galveston, Texas, the United States government has conditionally leased a large bathing pavilion to be remodeled into a hospital.

"The house is three stories high, 100 by 150 feet, and has room for 1400 persons now. The government option provides for another story, if that is needed, so the remodeled structure could accommodate 2000 wounded. In case more troops are moved to Mexico and there is hard fighting, all the wounded would be brought to this hospital for treatment."

Meantime, the United States naval hospital ship *Solace* was lying off Vera Cruz, under command of Dr. L. W. Spratling of the navy medical corps, ready to receive immediately any wounded sailors or marines for care or transport.

"The *Solace* has three isolation wards for contagious diseases with a capacity of 30 patients, rooms for nine officer patients, and wards accommodating 68 medical patients and 76 surgical patients. It has an operating room with two operating tables, an eye, ear, nose and throat examining room, a bacteriological and chemical laboratory, a dental laboratory, a cooled morgue in the after end of the ship, and quarters for the medical staff and crew."

On May 14 the *Solace* brought to New York 101 sick and wounded sailors and marines, 68 of whom were landed and sent to the Naval Hospital. After refitting, the *Solace* will sail again on June 9 to return to Vera Cruz.

MEDICAL LEGISLATION. REORGANIZATION OF THE MASSACHUSETTS STATE BOARD OF HEALTH.

IN another column of this issue of the JOURNAL we print in full the text of the proposed bill for the reorganization of the Massachusetts State Board of Health, as drafted by Dr. Rosenau, and submitted by the Governor with a special message to the General Court. This bill has already been reported favorably by the legislative committee on public health, five of the eleven members, however, reserving their right to dissent. On Friday of last week, May 15, the councillors of the Massachusetts Medical Society, and other physicians interested in public health matters met Governor Walsh at the Boston Medical Library to discuss the bill. In connection with this discussion the name of Dr. Victor G. Heiser, of the United States Public Health Service, was mentioned as a probable candidate for the position of Health Commissioner.

DR. WALCOTT'S RETIREMENT FROM THE BOARD OF HEALTH.

ON May 19 Dr. Henry P. Walcott's term of office as a member of the Massachusetts State Board of Health expired. After thirty-three years of faithful and distinguished service on this important board, much of the time as its chairman, Dr. Walcott is unfortunately not a candidate for reappointment. Indeed the personal sacrifice he has already made for the welfare of the community is greater than might be asked of any man, and merits the appreciative and lasting gratitude of the public and of the profession.

Upon this occasion of Dr. Walcott's retirement, an address, signed by about twenty-two hundred Massachusetts physicians, was presented to him expressing their grateful sentiments and regard. This address, which is published in full in another column of this issue of the JOURNAL, so adequately states the feelings of the profession and the merit of his service that nothing can here be added to its deserved tribute. The standard set by Dr. Walcott's predecessors in affairs relating to public health was greatly creditable to this Commonwealth, and was everywhere recognized by sanitarians; his own discharge of the duties of the office not only has been worthy of them, but makes increasingly difficult the responsibilities of his successors. His was a type of fidelity and devotion not always manifested in unpaid public office, the type

> "in which appears
> The constant service of the antique world,
> When service toiled for duty, not for meed."

MEDICAL NOTES.

HONOR FOR DR. FLEXNER.—It is announced that the President of the French Republic has recently conferred the cross of chevalier of the legion of honor on Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, for his services to science in the treatment of epidemic cerebrospinal meningitis.

AWARD TO DR. GORGAS.—It is announced that the American Museum of Safety has recently awarded the Dr. Louis Livingston Seaman medal to Dr. William C. Gorgas, surgeon-general of the United States Army, for his work in making the Panama Canal Zone sanitary and habitable.

A WELSH CENTENARIAN.—Thomas Morris, of Westernville, Neb., is locally reputed to have been born on Jan. 15, 1794, at Berriew, Montgomeryshire, Wales. He followed the cobbler's trade in his native village until 1871, when he migrated to the United States and became a farmer. He drinks tea and coffee, is still able to walk, and reads with the aid of glasses.

LONDON DEATH-RATES IN MARCH.—Statistics recently published show that the total death-rate of London in March was 152 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 20.3 in the old city, and the lowest was 10.1 in Lewisham, a populous southern residential region.

BOSTON AND NEW ENGLAND.

TWO LIVING CENTENARIANS.—Mrs. M. J. Lavin of Melrose, Mass., is said to have been born on May 9, 1814, in Prince Edward Island. She was married in 1837 and has had six children, of whom three are living, with 15 grandchildren and 6 great-grandchildren.

Benjamin Priest, of Canaan, Somerset County, Maine, is said to have been born on May 12, 1811. He is the oldest living veteran of the Civil War.

Long Island Hospital.—The Long Island Hospital, Boston, is in need of new buildings.

"Two years ago the city council appropriated $77,000 for new buildings, and last year $210,000. The construction of a new central kitchen with connecting subways to the different buildings, an addition to the men's dormitory and alteration of the women's dormitory have been undertaken. These building operations will give much relief to the crowded conditions, but further construction, in the opinion of the trustees, should be undertaken at once.

"The institution suffers from lack of sufficient nurses. The present nurses' home will not permit an increase in the number of tenants and, until a new building is constructed, the trustees will be obliged to get along with the present number. Another need is a maternity hospital and nursery separate from the main hospital, and to this use it is planned to put the present nurses' home. The plans already adopted call for a nurses' home and for hospital and dormitory pavilions. The architects estimated that these buildings could be erected within the appropriation of $287,000, but this was found impossible. The amount of money now demanded for the new buildings is $111,951."

Scarlet Fever in Bedford.—Report from Bedford, Mass., on May 10, states that the epidemic of scarlet fever in that town is ended and the quarantine raised.

Jubilee of Massachusetts Dental Society.—The fiftieth anniversary and annual meeting of the Massachusetts Dental Society in Boston on May 7 were attended by about sixty members. The history of the society was reviewed in a paper by Dr. Waldo E. Boardman, of Boston; an address was delivered by the outgoing president, Dr. Aurelius F. Wheeler, of Worcester; and one on "The Relation of the State and District Societies," by Dr. Thaddeus P. Hyatt, of New York City. The following officers were elected for the ensuing year: president, Dr. Henry H. Piper, of Somerville; secretary, Dr. A. H. St.C. Chase, of Everett, and treasurer, Dr. Joseph T. Paul, of Boston. The society voted to raise the sum of $10,000 towards the national fund for establishing and directing oral and dental research.

Recent Mortality Rates in Boston.—The Boston health department's mortality report for the first four months of this year shows an increase of 69 deaths over the corresponding months of last year, but the death-rate shows a drop from 17.90 to 17.81 of 1000 population. The infant mortality for the same period this year shows a decrease of 77.

Deaths thus far this year number 4396 against 4327 last year. Of that number 439 were victims of tuberculosis in all forms, a decrease of 16 compared with the figures of the first four months of 1913; typhoid 30, a gain of 14.

Of 58 diphtheria victims, six were non-residents, while the same number of scarlet fever victims were residents of other municipalities.

The number of children under one year who died during the first four months of this year was 651, against 728 for the corresponding period of last year.

From broncho-pneumonia there were 85 deaths, a decrease of 22; pneumonia, 60.

Hospital Bequests.—The will of the late Mrs. John M. Harlow, of Woburn, Mass., which was filed on May 7 for probate at Cambridge, Mass., contains considerable bequests to the Massachusetts General Hospital and the Boston Medical Library. To the Woburn Charitable Association is left a fund of $20,000 for erecting a surgical building to be known as the Dr. John M. Harlow Surgery, and to be used in conjunction with the Charles Coate Memorial Hospital of Woburn.

The wills of the late Emily and Eliza A. Conant, of Concord, Mass., who died on April 28 and May 2, respectively, were filed simultaneously last week for probate. They contain a bequest of $5000 to the Deaconess Hospital, of Concord, for a free bed, to bear the names of both testatrices.

The will of the late Esther F. Hannum, of Cambridge, Mass., who died on May 5, was filed on May 13, in the Middlesex probate court. It contains bequests of $2000 each to the Cambridge Hospital and the Cambridge Visiting Nurses Association, and $1,000 to the Holy Ghost Hospital, Cambridge.

Roentgen Society of New England.—The Roentgen Society of New England was formed at a meeting of about twenty roentgenologists, held at the office of Dr. A. W. George of Boston, May 6, 1914. An organization was effected and the regular program will begin in the fall. The officers elected were, the executive committee: chairman, Dr. A. W. George; Dr. Walter J. Dodd, Dr. Samuel W. Ellsworth; secretary, Dr. Ralph B. Leonard, all of Boston.

MASSACHUSETTS COLLEGE OF PHARMACY.—The annual graduating exercises of the Massachusetts College of Pharmacy were held in Boston on Thursday of last week, May 14. The principal address was made by Mr. Samuel W. McCall. Diplomas were awarded to 39 students, 4 of whom are women.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending May 12, 1914: (Diphtheria, 45, of which 2 were non-residents; scarlatina, 107, of which 18 were non-residents; typhoid fever 6; measles, 114, of which 2 were non-residents; tuberculosis, 59, of which 5 were non-residents.

The death-rate of the reported deaths for the week was 15.49.

NEW YORK.

NEW YORK BOTANICAL GARDEN.—May 7 was a field day at the New York Botanical Garden, Bronx Park, in honor of the Woman's Auxiliary of the Botanical Society. On the reception committee of the board of managers were Drs. W. Gilman Thompson, Frederic S. Lee, and Lewis Rutherford Morris, and after the members and guests had visited all parts of the extensive grounds, riding and walking alternately, tea was served and an address of welcome given by Dr. Thompson in the museum building. The tea was made from the leaves of plants actually grown in the garden, and an interesting feature of the occasion was the presentation by Dr. Reginald H. Sayre of a series of old Chinese paintings showing the process of preparing tea. In addition, Dr. N. L. Britton, director-in-chief of the garden, gave, in concise form, some idea of what the New York Botanical Garden is, with its 250 acres of land, 4 miles of driveways, 8 miles of footpaths, 75 acres of natural forest (including the wonderful hemlock forest), 100 acres of shrubs, 20 acres of lawns and meadows, over a mile of herbaceous beds, 6 to 10 feet wide, with 3,000 varieties of plants; in addition to the immense greenhouses containing more than 8,000 kinds of plants, and the palm house, with 130 varieties of palm.

BETH ISRAEL HOSPITAL.—The Beth Israel Hospital, now located at Cherry and Jefferson Streets, far down on the east side, has purchased for the erection of a new hospital building a site on Livingston Place, fronting on Stuyvesant Square. The plot has an area of some 14,000 square feet, and, in addition to the price of the land, the cost of the new structure will be about $1,000,000. The institution, which was founded in 1890, has outgrown its present quarters, and in the building on Stuyvesant Square there will be 500 beds, besides ample provision for dispensary service.

BRONX CONTAGIOUS HOSPITAL.—A hospital for contagious diseases in the borough of the Bronx, the population of which is approximately 600,000, is now assured, the board of aldermen having authorized the purchase, as a site for the purpose, a tract of thirty-three acres in the upper part of the borough, known as "Seton Falls Park." In July, 1911, the Board of Estimate and Apportionment voted an appropriation of $125,000 corporate stock for such a hospital, but in consequence of vigorous protests made by local taxpayers, action was deferred. This appropriation is now available for the construction of the first hospital building. The Health Department has arranged to have smallpox vaccination performed daily at all its children's clinics, and also, on two days of the week, at each infants' milk station. This action will create 62 offices of the department where vaccination may be obtained free of charge. In view of the mutual interests existing between the health authorities and life insurance companies in the promotion of public health, these companies have been found willing to coöperate cordially with the Health Department in carrying on an extensive educational campaign among the people of the city. Already, the Metropolitan and Prudential companies have placed the services of their agents at the disposal of the department for the distribution of public health literature. The department has often found it difficult to quickly reach large numbers of persons, but the action of these two companies alone means approximately 3,000 agents visiting 750,000 families weekly.

FUND FOR NEW YORK UNIVERSITY.—It is announced that a donation of a trust fund of $10,000 has been made to New York University by Mrs. Helen H. Le Fevre, widow of Dr. Le Fevre, the late dean of University and Bellevue Hospital Medical College. The trust is to be known as the Egbert Le Fevre Deanship Fund, and the terms provide that the income is to be applied toward the salary of the incumbent of the deanship of the school. Although it is definitely so stated, the income of the fund may be added to the salary at present received by the dean. In

making the gift, Mrs. Le Fevre stated that she wished in some way to assist in perpetuating the memory of her husband, and expressed the hope that the fund would prove of material benefit to the institution in which Dr. Le Fevre was so deeply interested, and to which he devoted so much work and time during the best years of his life.

Current Literature

Medical Record.

May 2, 1914.

1. Sutter, C. C. *The Development of Complement-Fixation Tests.*
2. Stephenson, J. W. *The Intensive Treatment of Syphilis of the Nervous System by Neosalvarsan Intravenously and Mercury by Inunction.*
3. Dwight, E. W. *The Value of Small Classes.*
4. Webster, D. *A Case of Endophlebitis Obliterans of the Central Retinal Vein, with Resulting Acute Glaucoma.*
5. Ford, J. S. *Treatment of Pulmonary Tuberculosis by the Induction of Artificial Pneumothorax.*
6. Epstein, S. *Arteriosclerosis as the Orthopedist Views It.*
7. Pendexter, S. E. *A Simple Efficient External Nasal Splint.*
8. Hallard I. W. *Lacerated Cervix Uteri and Reflex Irritation.*
9. Best, W. H. *Salvarsan in Non-Syphilitic Diseases.*

New York Medical Journal.

May 2, 1914.

1. Mills, C. K. *The Different Theories of Aphasia.*
2. Dercum, F. X. *The Clinical Interpretation of Aphasia.*
3. Pedersen, V. C. *Tuberculosis of the Right Testicle Secondary to Removal of the Left Testicle for Tuberculosis.*
4. Clark, L. P. *Cerebrocerebellar Diplegia.*
5. Alexander, R. M. *Dermatitis Exfoliativa in an Insane Patient.*
6. Smith, H. *Larymgeal Cancer.*
7. *Rongy, A. J., and Arluck, S. S. *Pituitrin.*
8. MacGowan, G. *A New Urethroscope.*
9. Telfair, J. H. *Complete Inversion of the Uterus Following Delivery.*
10. Gregory, W. M. *Variation in Drugs.*

7. Rongy and Arluck discuss the clinical use of pituitrin, its abuse and its dangers, as they view them in the light of their experience with some three hundred cases. They advise conservatism in using the drug. It does not induce labor pains, but does increase their intensity and frequency after labor has started. A single dose may be used as an adjuvant in cases where pregnancy is interrupted by catheter or bag. Pituitrin should not be used early in the first stage, as its action is too transient. It is contra-indicated when inertia is complete, on account of the danger of uterine rupture, also in cases of dystocia due to malposition or obstruction. The cervix must be dilatable, the presenting part engaged, and a general anesthetic at hand. The drug should not be used in cases where a sudden rise in blood-pressure may prove dangerous, and should be used with caution when the fetal heart sounds are feeble or irregular.
[L. D. C.]

The Journal of the American Medical Association.

May 2, 1914.

1. *Russell, F. F. *Antityphoid Vaccination in the Army During* 1913.
2. *Crile, G. W. *Drainage versus Immediate Suture of the Common Duct.*
3. Henson, G. E. *Man, the Principal Etiologic Factor in the Perpetuation of Malaria, with Special Reference to the Endemicity of the Disease in the Temperate Zone.*
4. *Smyth, H. F. *The Cultivation of Tissue Cells in Vitro and Its Practical Application.*
5. McLester, J. S. *Benzol in the Treatment of Polycythemia Rubra, with Report of a Case.*
6. Druskin, S. J. *Extraperitoneal Cesarean Section, with Report of a Case.*
7. *Cadwalader, W. B. *A Comparison of the Onset and Character of the Apoplexy Caused by Cerebral Hemorrhage and by Vascular Occlusion.*
8. Brown, W. L., and Brown, C. P. *Technic for Arthroplasty of the Shoulder-Joint.*
9. Eisendrath, D. N. *The Effect of Injecting Collargol into the Renal Pelvis. Preliminary Note.*
10. Crispin, A. M. *Argyrism Following the Use of Collargol.*
11. Bassler, A. *A New Technic of Roentgen Ray Examination for Early Diagnosis of Cancer of the Esophagus.*
12. Watkins, T. J. *Treatment of Infected Wounds.*
13. Underhill, E. C. *Report of a Case of Quinin Poisoning.*
14. Huntoon, F. M. *A Simple and Reliable Method of Staining Spores.*
15. Dryer, J. L. *Boils.*

1. Russell states that the prophylactic antityphoid vaccination as used in the army has given almost absolute protection against typhoid without producing untoward effects of any character.

2. Crile advocates immediate closure of the common bile duct after removal of stone, instead of drainage, and believes if this is carefully done both morbidity and mortality will be lessened.

4. Smyth's article is a detailed and interesting review of the very important subject of the cultivation in vitro of tissue cells. It is an interesting article.

7. Cadwalader finds the following in regard to cerebral hemorrhages: Spontaneous intracerebral hemorrhages are apt to be large; very small hemorrhages are rare. Large hemorrhages are always fatal; small ones may be, and it seems probable that hemorrhages are always fatal whether large or small. When repeated attacks of apoplexy with hemiplegia occur in the same patient at different times, the final or fatal attack may be due either to softening or to hemorrhage, but the former non-fatal attack is invariably caused by vascular occlusion and softening, not by hemorrhage. [E. H. R.]

The Lancet.

April 18, 1914.

1. *Shaw, H. B. *Gangrene of the Lung.*
2. Jones, F. W. *The Morphology of the External Genitalia of the Mammals. Lecture II.*
3. *Mapother, E., and Beaton, T. *Intraspinous Treatment (Swift-Ellis) of General Paralysis: A Preliminary Note on Four Cases Treated by This Method.*
4. *Layton, T. B. *Tonsils and Adenoids in Children: a Plea for Fewer Operations.*
5. Cunning, J. *Partial Gastrectomy for Gastric Ulcer Recurring after Gastro-jejunostomy.*
6. Pannett, C. A. *Contribution to the Treatment of Duodenal Fistula, with the Report of a Successful Case.*
7. Rischbrith, H. *Traumatic Dislocation of the Hip-joint Occurring in a Boy Ten Years Old.*

8. MORTON, W. C. *Plea for an International Anatomical Terminology Based upon the B. N. A.*
9. WARNER, F. *Elementary Training of Children.*

1. This is an interesting clinical lecture on gangrene of the lung, in which the writer briefly discusses causation and presents 17 pathological specimens of this condition due to different causes. He describes the bacteriological flora, symptoms, importance of elastic tissue in the sputum, complications such as empyema and pneumothorax, prognosis, diagnosis and treatment.

3. The writers present four cases of general paralysis treated by the Swift-Ellis intraspinous method of injecting salvarsan. They do not feel encouraged from the results they have obtained up to the present time.

4. Layton urges a more conservative attitude in regard to operations for removal of tonsils and adenoids. Many such operations he believes to be unnecessary; others he believes do good but draw the physician's attention from the care of carious teeth and the general hygiene of the child. [J. B. H.]

BRITISH MEDICAL JOURNAL.

APRIL 18, 1914.

1. SHAW, H. B. *Some Diagnostic Failures.*
2. SAINT, C. F. M. *A Comparison of Inflammation and Tumor Formation.*
3. RADCLIFFE, F. *Three Cases of Traumatic Rupture of the Small Intestine.*
4. MADDOCK, C. *Rupture of the Duodenum Caused by a Blow.*
5. MORT S. *Condensation Obstruction in Relation to Pericolitis and Intestinal Kinking.*
6. RUSSELL, E., AND PARKER, G. *Fatal Case of Veronal Poisoning.*
7. MUNRO, J. M. H. *Veronal Poisoning.*
8. DICK, M. I. *A Case of Veronal Poisoning.*
9. BILLINGTON, W. *The Results of Nephropexy.*
10. PORTER, R. R. M. *Heart-block in a Case of Pneumonia.*
11. JERNS, J. J., AND MARTYN, V. C. *Two Cases of Diphtheria.*

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 15. APRIL 14, 1914.

1. STEPHAN, R. *The Nature of Protective Ferments.*
2. ABDERHALDEN, E., HOLLE, H., AND STRAUSS, H. *The Action of Proteolytic Ferments in Blood Serum as Demonstrated by De-albuminization and by the Determination of Substances Reacting with Ninhydrin in Relation to the Filtrate Nitrogen (Preliminary Communication).*
3. ABDERHALDEN, E., AND PAQUIN, M. *The Action of Proteolytic Ferments in Blood Serum as Demonstrated by De-albuminization and by the Determination of Substances Reacting with Ninhydrin in Relation to the Filtrate Nitrogen. (Second Communication.)*
4. HEINEKE, H. *The Theory of the Mechanism of Rays and Especially of Their Period of Latency.*
5. MEYER-BETZ, F. *A Method for Illustrating the Liver in X-ray Plates and Its Clinical Significance.*
6. GOTTLIEB, R. *A Method for Determining the Potency of Digitalis Preparations on the Frog.*
7. POLANO, O. *Further Studies with Posterior-cervical Cesarian Sections.*
8. JESSEN, F. *Artificial Pneumothorax and Pleurolysis.*
9. *KLAUSNER, E. *Contraluesin in the Abortive Treatment of Syphilis.*
10. *V. SCHUBERT, E. *Intraspinous Neosalvarsan Treatment.*
11. *GENNERICH. *Intraspinous Salvarsan Treatment.*
12. NEUMAYER, V. *A Fatality after Neosalvarsan.*
13. DE FAVENTO, P. *A Case of Multiple Hemorrhages Following the Injection of Calomel.*
14. BERNER, K. *Absorption Phenomena in Abderhalden's Dialysis Method.*
15. DEETJEN H., AND FRÄNKEL, E. *The Effect of Concentration of the Ninhydrin Reaction.*
16. PONNDORF. *The Cure of Tuberculosis.*
17. REICHE, F. *Doctor Fritz Delius.*

9. Contraluesin is a proprietary combination prepared by Richter, of salicylic acid, sozojodol, quinine, corrosive sublimate, arsenic, phosphorus, and colloidal mercury. It is administered by intramuscular injection. Klausner has used this drug on 300 patients, making about 2000 injections. From this series he concludes that contraluesin reacts favorably on syphilis in all its stages and is of especial benefit in abortive treatment if combined with salvarsan. The preparation has no bad effects on the kidney, is nonirritating locally and has only trivial accessory effects.

10 and 11. V. Schubert and Gennerich describe a technic, which is essentially the same, for injecting salvarsan or neo-salvarsan into the spinal cord in a dilute solution of cerebro-spinal fluid or saline. Both authors believe that if this form of treatment is given properly as good results are obtained as with the Swift-Ellis method, without ill consequences, and with the advantage of greater simplicity. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 9. MARCH 2, 1914.

1. IZAR, G., AND NICOSIA, R. *Chemotherapy in Malaria.*
2. GINS, H. A. *A Contribution on Experimental Vaccines.*
3. *STERN, H. *On the Diagnosis of Hypothyroidism.*
4. HALPERN, M. *Morphologic Peculiarities of the Blood in Diabetes Mellitus.*
5. ENGEL. *The Feeding Cure (Weir Mitchell) in Childhood.*
6. *AUMANN AND STORP. *Experiments with "Grotan," a New Disinfectant.*
7. SIMON. *On the Occurrence of Multiple Symmetrical Lipomata.*
8. SCHULZ, F. C. R. *A Contribution to Serum Sickness. (Concluded.)*
9. ZÄNKER, W., AND SCHNABEL, K. *Modern Surgical Dressings.*

3. Stern describes, as a not uncommon finding in hypothyroidism, an edematous infiltration of the mucous membrane of the lower urinary tract, this condition giving rise to polyuria, tenesmus and strangury. Frequent and painful micturition may be the only subjective symptom of the condition in its early stages, and this, together with intractable enuresis, either in children or adults, should indicate cystoscopy and investigation of the functioning of the thyroid. These symptoms are relieved by the administration of thyroid extract.

6. Grotan is a complicated synthetic compound of cresol, chlorine and sodium. It is easily soluble in water, of an alkaline reaction, has no injurious action on skin, does not corrode instruments or destroy cloth, and experiments with guinea-pigs have shown that it has practically no poisonous action. The authors claim that in a 0.33% solution it rapidly kills the ordinary pyogenic organisms,—in a series of ten experiments with a solution of this strength the staphylococcus aureus was in each instance killed at the end of two minutes. It is put up in tablets, and for ordinary purposes four are used to a liter of water. If the authors' claims are true this should prove a useful and valuable disinfectant. [R. H. M.]

No. 10. MARCH 9, 1914.

1. v. ZEISSEL, M. *Observations on the Pathology of Syphilis and the Therapeutic Action of Salvarsan.*
2. *KLEMPERER, F. *Tubercle Bacilli in the Blood Stream.*
3. *HALLAS, E. A. *Shellac Concretions in the Stomach and Duodenum.*
4. UNNA, P. G., AND GAUS, O. *On the Chemistry of the Cell. IV. The Nissl Bodies.*
5. MÜNGER, A. *Precocious Puberty and Psychic Development.*
6. FAGINOLI, AND FISICHELLA, V. *Further Observations on the Intracutaneous Reaction of Noguchi's Luetin.*
7. BLEICHRÖDER. *Concerning the Increase in Miscarriages in the Berlin Municipal Hospitals.*
8. IZAR, G., AND NICOSIA, R. *Chemotherapy in Malaria. (Continued.)*
9. SÖDERBERGH, G. *A Supplement to "Some Observations on the Localization of Tumors of the Cord."*

2. The author has examined with great care the blood in a series of cases; in 24 with pulmonary tuberculosis he has in 21 isolated an acid-fast bacillus which he feels confident is the tubercle bacillus. He rules out carefully the possibility of contamination or artefacts. In 26 non-tuberculous patients he was unable to isolate any acid-fast bacilli whatever. As a result of his own work, and a careful review of the literature, he concludes that clinical, anatomical and experimental findings all make it in the highest degree probable that tubercle bacilli can at one time or another be found in the blood in all sorts of tuberculous cases.

3. The author reports two cases of alcoholics,—one a chair-maker and one a painter—both of whom died with gastric symptoms, and in each there was a huge shellac cast of the stomach, resulting from drinking polish or other articles of their trade. [R. H. M.]

No. 11. MARCH 16, 1914.

ON THE 60TH BIRTHDAY OF PAUL EHRLICH AND EMIL VON BEHRING.

1. LAZARUS, A. *Paul Ehrlich.*
2. MUCH, H. *E. von Behring.*
3. RICHET, C. *P. Ehrlich; Medicine and Science.*
4. HEUBNER, O. *The Introduction of v. Behring's Diphtheria Antitoxin in the Clinic and in Private Practice.*
5. SALOMONSEN, C. J. *Memories of the Summer Term in Breslau in 1877.*
6. PEL, P. K. *Is Smoking Harmful?*
7. *LESSER, E. *Progress in the Treatment of Syphilis.*
8. v. ZEISSL. *The Treatment of Syphilis with Salvarsan and Mercury.*
9. CALMETTE, E. *On the Demonstration of Free Lipoids in the Serum by Activation with Cobra Venom, Especially in the Course of Tubercular Infection.*
10. BORDET, J., AND DELANGE, L. *The Question of the Rôle of Lipoids in the Coagulation of the Blood.*
11. BABES, V. *On the Occurrence of Meta-Chromatic Bodies in Acid-fast Bacilli.*
12. RÖMER, P. H. *Studies in the Bacteriology of Diphtheria.*
13. FLEXNER, S. *Contributions to the Epidemiology and Pathology of Poliomyelitis.*
14. CARREL, A. *Present Condition of a Two Years' Old Strain of Connective Tissue.*
15. NOGUCHI, H. *On the Application of Certain Cultivation Methods to the Study of Infectious Diseases.*
16. PAWLOW, J. P. *The Peculiar Instability of the Internal Inhibition of Certain Reflexes.*
17. MESTSCHERSKI, H., AND GRINTSCHAR, F. *A Case of Scleroma of the Nose and Pharynx Treated without Result by Vaccines, and Improved by Local Physical Measures.*
18. *LAACHE. *Acute Parotitis Following Abdominal Affections.*
19. *HEDINGER, E. *On the Importance of Pre-senile Involution of the Mammary Gland.*
20. JADASSOHN AND ROTHE, L. *On the Pathogenesis of Urticaria.*
21. EDINGER, L. *Pain Arising from Veins.*
22. MARAGLIANO, E. *Vaccination as a Preventive of Tuberculosis.*
23. v. WASSERMANN, A., AND LANGE, C. *On the Question of the Origin of the Reaction Products in the Serum Diagnosis of Lues.*
24. ROUX AND METCHNIKOFF. *The Work of Paul Ehrlich.*

7. Lesser believes in early and energetic treatment of syphilis by the combination of mercury and salvarsan in all forms of the disease, including tabes, though he says that good results have not as yet been attained in general paralysis. He gives 3 or 4 injections of salvarsan at intervals of 10 to 14 days. He thinks that in the acute secondary stage with general symptoms salvarsan may cause severe toxic symptoms, and should be preceded by several days of mercury alone. Intermittent treatment is advisable. He states that severe toxic symptoms from salvarsan undoubtedly arise in some cases,—Mentberger collected 87 cases, up to August, 1913, which had either very severe after-effects or else died.

18. Laache reports three interesting cases as follows: One, parotitis (right) in the course of an acute bleeding gastric ulcer; two, double parotitis associated with an acute appendix; and three, suppurative parotitis (left) with paralysis of the facial nerve, in a case of salpingitis. He mentions several theories, but can advance no good explanation of these associated conditions.

19. The author presents five cases of a large series of breasts, which were removed for constant and intractable pain, and which on pathological examination showed more or less complete senile atrophy of all the glandular elements, though none of the patients were over 44, and two were under 40. Histological examination revealed no definite cause for the pain. In conclusion he suggests that pre-senile involution must be considered a definite clinical and pathological condition, associated with severe pain, and hopes for a more extensive and detailed knowledge of the condition as soon as more cases are collected. [R. H. M.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

BAND 113. HEFT 3 AND 4. JANUARY 31, 1914.

1. ROEMHELD, L. *Concerning False Heart Block.*
2. BECKER, T. *Analysis of the Electrocardiogram by Means of Roentgenkymography.*
3. VEIL, W. H. *Clinical Importance of the Determination of Blood Concentration.*
4. ELFER, A., AND GEBER, H. *Nitrogen and Mineral Metabolism Changes in Scleroderma Diffusum.*
5. *KAHN, J. *Test of Heart Function.*
6. VON DEN VELDEN, R. *Clinical Experimental Work on the Knowledge of Temperature Lowering Substances.*
7. *DORNER, G. *Diagnosis of Uremia by Means of the Indican Determination in the Blood Serum, Transudates and Exudates.*
8. CARONIA, G. *Fever Curves in Youthful Leish-Maniasis.*
9. BAETGE, P. *Growth and Perforation of Aneurysm.*
10. BEHRENROTH, E. *Effect of Pituitary Extract upon Blood-Pressure in Man Besides Remarks on a Few Injection Experiments in Growing Animals.*
11. SCHULZ, E. *Intra-abdominal Pressure and Blood Distribution in Enteroptosis.*

5. Kahn has worked with the method for testing heart function that was instituted by Waldvogel. The method consists in noting the difference in systolic blood-pressure in the same patient between lying and standing. He has tried the test out on a good many normal and pathological conditions and has charted the cases to show the difference in pressure dependent upon the initial height of the pressure. He feels that this method is practical and of a good enough accuracy for clinical purposes. The chief feature is that it can be used in the office as well as in hospitals. The normal limits are a rise of from 5-15 mm. in pressures that are from 60-100 mm. In pressures from 100-130 mm. the normal variation is from an increase of 15 to a drop of 5 mm.

7. Dorner has studied the importance of indican in the blood and body fluids as a diagnostic aid in diseases of the kidney. The test is a simple one and only requires from 10-20 c.c. of blood. Considerable amount of indican in blood serum means marked uremia. If present in the blood it is also present in the fluids from the pleural cavity and other edematous fluids, but not in the cerebro-spinal fluid. The indican apparently does not play a factor in the toxicity of the blood serum in uremia. With large amounts of indican in the urine none will appear in the blood when no nephritis exists. The liver is not the only place in which urinary indican is formed. Apparently the kidneys take part in its formation. Usually the detection of this substance in the blood means that death is near, but some cases improve after the demonstration of it. [C. F., JR.]

DEUTSCHE ZEITSCHRIFT FÜR CHIRURGIE.

BAND 126. HEFT 5-6. FEBRUARY, 1914.

1. *HÄRTEL, F. *The Treatment of Trigeminal Neuralgia with Intracranial Alcohol Injections.*
2. THORBECKE, W. *The Familial Appearance of Intestinal Polyps.*
3. *FROMME, A. *Intestinal Invaginations and Spastic Ileus.*

1. On the basis of 25 personal cases, which he reports from Bier's clinic at Berlin, Härtel believes his method of treatment indicated in fresh cases, in chronic cases limited to individual nerve-twigs, and in severe, extensive, recurrent cases. Secondary neuralgias should be treated etiologically. In hysteric cases, the alcohol treatment is contraindicated.

3. Fromme reports from Stich's clinic at Göttingen 22 cases of acute and 10 of chronic intussusception associated with spastic ileus. There is an excellent alphabetic bibliography of 113 titles. [R. M. G.]

DIE THERAPIE DER GEGENWART.

FEBRUARY, 1914.

1. SALGE, B. *The Treatment of Rachitis.*
2. SCHMIDT, H. *Radium Therapy in General Practice.*
3. *JANSEN, W. *The Medicinal Treatment of Articular Rheumatism, Especially with Apyron, an Acetyl-Salicylic Acid Preparation Soluble in Water.*
4. OPITZ, E. *The Treatment of Sterility in the Female.*
5. FOCKE. *Digitalis in Uterine Bleeding.*
6. MEIDNER. *New Remedies: V. Animal Extracts.*

3. Jansen tested the value of apyron in articular rheumatism. He finds it a safe, palatable and easily soluble salicyl preparation, acting promptly as a diaphoretic, antipyretic and antineuralgic. On account of its solubility it is well suited to injection as well as to ingestion. [L. D. C.]

ANNALES DE L'INSTITUT PASTEUR.

NO. 3. MARCH, 1914.

1. DUMAS, J. *Studies upon the Staphylococcus Aureus. Relation between Animal and Human Staphylococcus Aureus.*
2. NICOLLE, M., AND CESARI, E. *Studies upon the Staphylococcus Aureus. Toxicity of the Strains Studied in the Preceding Work.*
3. *MANONÉLIAN, J. *Histological Studies upon the Salivary Glands in Rabies.*
4. *DANYSE, J. *Work in Chemical Therapy. Combinations of Silver Salts and Arsenic Compounds in the Treatment of Experimental Trypanosomiasis and Syphilis in Man.*
5. VENTRE, J. *Influence of Artificial and Natural Media on Different Species of Saccharomyces.*
6. D'HERELLE, I. *The Cocco Bacillus of the Grass-Hopper.*

3. Manonélian has been working at the Pasteur Institute on the presence of the typical negri bodies of rabies in the nerve ganglions of the salivary glands. As a result of his studies he concludes that these bodies exist in the cytoplasm of the nerve cells in these intraglandular ganglions, but that they never appear in the parenchymatous cells of the acini or of the excretory ducts. The acini undergo, however, profound changes with necrosis and absorption of the necrotic material by endothelial phagocytes so that the glands may be replaced by the phagocytic cells. The phagocytic cells are seen in the saliva.

4. Danyse has been endeavoring to improve the toxicity of chemical bodies for certain human parasites without increasing the toxicity for the human host. For this purpose he has been adding salts of silver to different arsenic compounds and studying the effect experimentally and in certain human cases, especially general paresis. He gives a list of the results of these different compounds upon several types of spirilla and trypanosomes, and also upon lesions from the treponema pallidum in men and in rabbits. He concludes that the addition of bromide and iodide of silver to dioxydiaminoarsenobenzol increases the antiseptic and curative properties of all three without augmenting their toxic properties. He feels that these chemical compounds are not the only antiseptic power at work, but that the phagocytic power of the host is most important in destroying the microbes. [C. F., JR.]

REVUE DE CHIRURGIE.

FEBRUARY, 1914.

1. QUÉNU, E., AND MATHIEU, P.. *Lithiasis of the Branches of Bifurcation of the Hepatic Duct.*
2. *DUVAL, P. *Conservation of the Superior (Fronto-Palpebral) Branches of the Facial, in Total Extirpation of the Parotid Other Than for Cancer.*
3. MORESTIN, M. H. *Treatment of Extensive, Diffuse, or Pulsating Angiomata of the Face by Vascular Ligatures and Formolated Fixation.*
4. MOTY, F. *Accidents of the Wisdom Tooth.*
5. BRULÉ, M. *The Sterilization of Water by Ultra-Violet Rays and Its Application in Surgical Practise.*
6. WALTER-SULLIS, J. *The Liver in Appendicitis. (To be continued.)*

2. Duval describes, and illustrates with four anatomic plates, his operative technic in total removal of the parotid, and reports a case whose photographs represent the advantage of saving the upper of the three principal branches of the facial nerve at the *pes anserinus*. [R. M. G.]

Miscellany.

AN ACT TO CREATE A STATE DEPARTMENT OF HEALTH AND TO AMEND THE PUBLIC HEALTH LAWS.

The following is Governor Walsh's message transmitting to the legislature his bill for the reorganization of the State Board of Health.

To the Honorable Senate and House of Representatives.

In my inaugural address I emphasized the fact that in the multitude of legislative matters which come before the State Legislature, there are none of greater significance or importance than those which are planned with the purpose of protecting the public health, for upon a sound, healthful and vigorous population depend in the greatest measure the prosperity, safety and welfare of the Commonwealth.

There is no greater service than the prevention of sickness and premature death, with all its concomitant sorrows and miseries. The human body is the most wonderful machine that is known and the maintenance of this delicate mechanism in full vigor, for its allotted time, is the end for which health officers, physicians, social workers and others are striving. The government should lead in this great work.

Most legislation is directed towards objects which interest only a certain percentage of the population of the State. Public health legislation is necessarily of interest to every man, woman and child in the Commonwealth. Even recognizing the wonderful advance in health conservation which has taken place in the past few decades, it is still obvious that preventable disease is the main cause of death. Massachusetts may well point with pride to its early recognition of the public health problems and the creation, in consequence, of a State Board of Health.

Without detracting from the past accomplishments of the State Board of Health, it has become obvious to many, including those who are in a position to recognize the State Board of Health's service, that the Board does not possess the necessary organization to cope with the present health problems of the Commonwealth. In a word it is in some ways seriously handicapped in being able to reach the highest efficiency that the people have reason to expect of a department of health.

In recent years tremendous strides have been made in public health work, yet Massachusetts is conducting this work under administrative machinery provided many years ago.

Other States have recognized defects similar to our own, and as a result we note the passage of acts in various States reorganizing the State health service along the most modern and effective lines.

Massachusetts must not lag in the forward march and in order that the citizens of the Commonwealth might have the greatest possible protection I have deemed it my highest duty to suggest a reorganization of the public health activities of the State.

The time has come in Massachusetts for a salaried Health Commissioner to superintend that work of the government which deals with public health administration. He should be a man who will devote his whole time, strength and energy to this problem, and should be a man "skilled in science and experienced in public health administration."

The accompanying bill is designed to give Massachusetts a most effective type of public health organization. It has been drawn up after consultation with experts from the United States Public Health Service, the Commissioner of Health of New York State, and many others, qualified by experience and training, who have given freely of their advice, in order that the proposed legislation might represent the very best thought in this vital matter. This proposed legislation calls for the abolition of the State Board of Health and requires the appointment of a State Health Commissioner who shall be directly responsible to the Governor. A Public Health Council is created, but following out modern beliefs in effective administrative work, this council has no administrative or executive powers.

Provision is also made in this bill that the district health officers be required to give their entire services to the Commonwealth and that the present unsatisfactory arrangement be discontinued, —namely, health officers half-paid and expected merely to give such time as they choose in their respective districts to this work.

Your especial attention is invited to the creation of three new divisions, one dealing with infant and child hygiene, the second with communicable diseases, and the third an administrative department for educational and publicity work. The need of special activities in the prevention of infant mortality is evidenced by the fact that in Massachusetts in 1912, out of a total of 52,250 deaths, 12,273 were under two years of age. It is well recognized that many of these infant deaths are preventable, and an active division of the State Department of Health should do much to cut down this enormous wastage of life.

Similarly the tuberculosis problem is of great magnitude, even though noteworthy decreases in its mortality rate have been apparent in the past; 5,151 citizens of of Massachusetts succumbed to this disease alone in 1912, or almost 10 per cent. of the total mortality.

Modern sanitary science recognizes that a great deal of preventable disease cannot be wiped out by the introduction of water purification plants or the enforcement of milk pasteurization, or similar public acts, but requires the *individual* cooperation of all persons. This makes it necessary that proper publicity work, especially by the State cooperating with local health authorities, be undertaken to bring before the people the simple facts, which they must know if they are to avoid contracting an unnecessary sickness. This important function is required in the proposed reorganization.

There should be no half measures in the fight for better public health conditions. This is a clear case where the best is none too good and it is believed that the passage of this bill will make it possible for Massachusetts to adopt all the latest modern methods of health conservation and possess the strongest and best Health Department in the country. I know of no greater service that this Legislature can render to those who have delegated to it the power to contribute to their happiness and welfare through the agencies and activities of government, than by adopting the proposed legislation.

Neither partisanship nor personal considerations can be permitted to move our minds when the well-being, the health, the very life of our people are at stake. DAVID I. WALSH.

Be it enacted by the Senate and House of Representatives, etc., as follows:

Section 1. There is hereby created a State Department of Health which shall exercise the powers and perform the duties now conferred and imposed by law upon the State Board of Health and Section 1 of Chapter 75 of the Revised Laws is hereby repealed. The State Department of Health shall consist of a Commissioner of Health and a Public Health Council. There shall also be directors of divisions district health officers, and other employees as hereinafter provided.

Section 2. The Commissioner of Health shall be appointed by the governor, by and with the consent of the executive council, and shall be skilled in sanitary science and experienced in public health administration. The term of office of the Commissioner of Health shall be five years; he shall receive an annual salary of seventy-five hundred dollars and his necessary traveling expenses, and shall devote his whole time to his official duties. The Commissioner of Health shall be the administrative head of the State Department of Health. His duties shall be to administer the laws relative to health and sanitation and the regulations of the Department; to prepare rules and regulations for the consideration of the Public Health Council; to appoint and remove directors of divisions, district health officers, inspectors, and other necessary employees, and fix their compensation within the limitations of appropriations therefor. Directors of divisions and district health officers shall be exempt from civil service regulations. The Commissioner of Health shall further submit annually to the Public Health Council a report with recommendations as to needed health laws, shall perform all executive duties now required by law of the State Board of Health, and other duties incident to his position as chief executive officer. He may direct any executive officer or employee of the State Department of Health to assist in the study, suppression or prevention of disease in any part of the Commonwealth.

Section 3. The Public Health Council shall consist of the Commissioner of Health and six members, hereimafter called the appointive members, at least three of whom shall be physicians to be appointed by the Governor, by and with the advice and consent of the Council. Of the appointive members first appointed, two shall hold office until May 1, 1915, two until May 1, 1916, and two until May 1, 1917, and the terms of office of the appointive members thereafter appointed, except to fill vacancies, shall be three years. Vacancies shall be filled by appointment of the Governor and Council for the unexpired term. The Public Health Council shall meet at least once in each month, and at such other times as they shall determine by their rules or upon the request of any two members. The appointive members shall receive $10. per diem while in conference and their necessary traveling expenses while in the performance of official duties. It shall be the duty of the Public Health Council to make and promulgate rules and regulations; take evidence in appeals; consider plans and appointments required by law; hold hearings; define the qualifications of local health authorities; submit annually to the Legislature through the Governor a report, including recommendations as to needed health laws; and to discharge other duties required by law; but it shall have no administrative or executive functions. The Public Health Council shall have power, by the affirmative vote of a majority of its members, to establish, and from time to time amend rules and regulations under the public health laws, the enforcement of which devolve on the State Department of Health. Every regulation adopted by the Public Health Council shall state the date on which it takes effect, and a copy thereof duly signed by the Commissioner of Health shall be filed in the office of the Secretary of the Commonwealth, and furthermore shall be published in such manner as the Public Health Council may determine. Rules and regulations so promulgated shall have the force and effect of law, and any violation thereof may be declared to be a misdemeanor, and punished by a fine of not less than one dollar nor more than one hundred dollars, or by imprisonment in the house of correction for a term not exceeding thirty days, or both. Upon request of the Public Health Council, the Governor is authorized to require the District Police to assist the State Department of Health in enforcing its rules and regulations.

Section 4. There shall be in the State Department of Health the following divisions, together with such other divisions as the Commissioner of Health may from time to time determine:—

1. Division of Administration.
2. Division of Communicable Diseases.
3. Division of Sanitary Engineering.
4. Division of Food and Drugs.
5. Division of Laboratories.
6. Division of Child Welfare.

The Commissioner of Health shall appoint and may remove, with the approval of the Public Health Council, a director to take charge of each division, and shall prescribe the duties of each division. The compensation of directors of divisions shall be fixed by the Commissioner of Health, within the limits of appropriations therefor, and subject to the approval of the Governor and Council.

Section 5. The Commissioner of Health shall, from time to time, divide the state into eight sanitary districts, and shall appoint a district health officer for each district, with the approval of the Public Health Council, at a compensation not exceeding $3500 per annum and necessary traveling expenses, and may remove the said officer. Said district health officers shall not engage in any other occupation and shall give their entire time to the performance of their duties. The Commissioner of Health may from time to time order two or more of said district health officers to work in one sanitary district in order to study, suppress or prevent disease. Each district health officer shall, under the direction of the Commissioner of Health, perform the following duties:—

1. Keep himself informed as to the work of each local health authority within his sanitary district;

2. Aid each local health authority within his sanitary district in the performance of his duties, and particularly upon the appearance of any contagious or infectious disease;

3. Assist each local health authority within his sanitary district in making an annual sanitary survey of the territory within his jurisdiction, and in maintaining therein a continuous sanitary supervision;

4. Call together the local health officers within his district or any portion of it from time to time for conference;

5. Adjust questions of jurisdiction arising between local health officers within his district;

6. Study the causes of excessive mortality or morbidity from any disease in any portion of his district;

7. Promote efficient registration of births, deaths and notifiable diseases;

8. Inspect, from time to time, institutions, schools, public conveyances, and labor camps within his district, and enforce public health laws and regulations in relation thereto;

9. Endeavor to enlist the cooperation of all physicians and welfare organizations within his district in the improvement of the public health therein;

10. Promote the information of the general public in all matters pertaining to the public health;

11. Act as the representative of the Commissioner of Health, and under his direction, secure the enforcement within his district of the public health laws and regulations.

Section 6. When in the opinion of the Public Health Council any local health authority shall fail or refuse to enforce the laws and regulations to prevent the spread of contagious or infectious disease declared by the Public Health Council to be dangerous to the public health, or when, in the opinion of said Council, a public health emergency exists, the Commissioner of Health may enforce the rules and regulations of the State Department of Health within the territorial jurisdiction of such local health authorities, and for that purpose shall have, and may exercise all the powers given by statutes to local health authorities; all expenses so incurred to be a charge against the cities and towns concerned.

Section 7. Towns and cities may cooperate for promotion of the public health, either by special vote or by vote of their respective boards of health. They may participate in the employment of trained health officers or other agents, and in the installation and maintenance of a common laboratory or other equipment. Funds may be appropriated and disbursed for this purpose either by a special vote of a city or town, or by vote of a board of health of a city or town from appropriations or other funds at its disposal. Whenever two or more towns shall thus combine or cooperate for more efficient health service, and shall appropriate a sum or sums of money for such joint or cooperative action, a sum equal to two-fifths of the total amount contributed by the cooperating towns shall be paid over and added thereto from the Treasury of the Commonwealth; provided, that the general plan of cooperation, as well as the principal health officer, executive agent, or laboratory director employed by the cooperating towns, shall have been approved annually by the Public Health Council; and *provided, further*, that no sum so paid to any such group of cooperating towns shall exceed $1000, in any one year.

Section 8. An annual conference of health officers shall be held under the supervision of the Commissioner of Health, and necessary expenses of health officers attending said sanitary conference shall be paid by individual boards of health respectively, or by the selectmen acting as boards of health.

Section 9. For carrying out the purposes of this act there shall be appropriated for the purposes of the State Department of Health, over and above the amount already appropriated for the State Board of Health for the year 1914, the sum of

Section 10. All acts and parts of acts inconsistent with this act are hereby repealed.

AN ACT TO REORGANIZE THE MASSACHUSETTS STATE BOARD OF HEALTH.

In response to an invitation extended by the Massachusetts Medical Society, ninety physicians of the Massachusetts Medical Society, the Homeopathic Medical Society and the Massachusetts Eclectic Medical Society, met at the Boston Medical Library, May 15, 1914, at 3 p.m., to discuss the act to reorganize the Massachusetts State Board of Health (House No. 2590) introduced into the Legislature May 12. Representatives from at least ten counties of the state were present.

The meeting organized by the election of Dr. W. P. Bowers of Clinton, chairman, and Dr. W. L. Burrage of Boston, secretary.

Governor Walsh explained the provisions of the act at length, and Dr. M. J. Rosenau, a member of the State Board of Health, who drafted the bill, sketched its chief purposes. Twelve different physicians present took part in the discussion and the Governor and Dr. E. H. Bigelow and Dr. Rosenau answered questions. Dr. Trowbridge of Worcester proposed the following amendment to Section 5, line 3: Insert after the word *officer*, "Who shall be a physician in good standing." On motion of Dr. Duggan of Worcester it was *Voted:* That the meeting indorses the recommendations and the bill of Governor Walsh as to the creation of a State Department of Health (House Bill No. 2590) with the amendment above noted. The vote was unanimous.

Adjourned at 4.53 p.m.

WALTER L. BURRAGE,
Secretary of the Meeting.

ADDRESS TO DR. WALCOTT.

The following is the text of the address presented to Dr. Walcott on his retirement from the State Board of Health.

To Henry P. Walcott, M.D., LL.D., Chairman, Massachusetts State Board of Health, from Twenty-two Hundred Members of the Medical Profession of the State, Greeting:

Sir: On the 19th day of May, 1914, your term as a member of the State Board of Health ends, and we understand you are not a candidate for reappointment.

Such an occasion cannot be allowed to pass unnoticed, at least by those citizens who as a class should be most competent to gauge the value of such services to the State as yours have been.

The best appraisal of those services is the mention of some of them, with a brief statement of your relations to the Board.

Your connection with the Board began in 1880, 33 years ago, when, after ten years of independent existence, it had been merged with the conjoined Board of Lunacy and Charity, and you were unanimously elected its Health Officer. At this time, you served on a commission for the sanitary im-

provement of the Blackstone river, a precursor of your subsequent labors on similar problems.

In 1886, by an act of the legislature, the Board of Health once more entered upon an independent existence. You were appointed a member for a seven years' term by Governor Robinson, a Republican, with the advice and consent of the senate, and became the chairman. You have since been reappointed three times for terms of seven years: once by Governor Russell, a Democrat, in 1893; once by Governor Crane, Republican, in 1900; and once by Governor Guild, Republican, in 1907. Since 1886, you have always continued as chairman of the Board.

Early in 1894, you began to consider the advisability of establishing a laboratory for the free production and distribution of diphtheria antitoxin; and such curative serum was actually distributed early in 1895, being the first so distributed in any state. This was made possible through the cooperation of Harvard University, secured by your influence, at the Bussey Institution, and was carried on for nine years—during this time as well as later under the personal direction of Dr. Theobald Smith—until 1903, when the legislature enacted a law authorizing the State Board of Health to produce and distribute antitoxin and vaccine virus. Again through your influence, a laboratory was built on the grounds of the Bussey Institution where the preparation of antitoxin and animal vaccine was carried on together.

Within the last four years, you have served as chairman of two State Commissions appointed to consider various important tuberculosis problems: one in 1910, and one in 1912. Reports were made to the legislature and printed as public documents.

It is impossible to separate your work in connection with the Board of Health from that in connection with the North and South Metropolitan Sewerage Systems, the Charles River Valley System, the Charles River estuary improvement, the Metropolitan Water Supply, and numerous other similar problems of perhaps secondary importance, such as the improvement of the Neponset River Valley, of the Concord and Sudbury Rivers, of the sanitary conditions as respect water supply, sewerage and sewage disposal of many other cities and towns which have been devised by the committee on water supply and sewerage of the Board of Health, of which Mr. Hiram F. Mills is chairman, and carried out in connection with its recommendations under your chairmanship of the Board.

Since the reëstablishment of the State Board of Health in 1886, under your chairmanship, it has been the custom of the legislature to refer all important sanitary questions to that Board for investigation and advice, instead of creating special commissions, as obtains in many states. This custom, under your wise administration, has doubtless saved much money to the State and, at the same time, secured sanitary improvements recognized in all civilized countries as the best of their class.

The investigations and recommendations of the Board have commended themselves to the legislature and in general have been carried out ultimately as presented.

From 1886 to the present time, you have been constantly and steadfastly facing these great and grave problems. Since 1895, when the State Board of Health made its report to the legislature, presenting a plan for the water supply of the City of Boston and the surrounding cities and towns, have been added to your responsibilities those of a commissionership on the Metropolitan Water Board. You have borne the responsibilities both of recommendation and of execution.

You have succeeded on the Board of Health such men as Henry I. Bowditch, George S. Derby and Charles F. Folsom, whose services to State medicine were widely known and recognized, and honorable to Massachusetts.

You have met the responsibilities then assumed with such wisdom, discretion and rare modesty, as to make the task of your successor who would uphold the standards bequeathed to him a difficult one indeed.

Correspondence.

ANOTHER LESSON IN ANTI-VACCINATION.

BOSTON, May 11, 1914.

Mr. Editor: The recent experience of Niagara Falls, a tourist city of about 35,000 inhabitants, is interesting as showing the harm that a persistent, fanatical anti-vaccinationist is capable of doing even in these enlightened days. Being refused admission to the local press, this physician has been publishing and distributing pamphlets decrying vaccination for years in the untruthful, exaggerated manner peculiar to this cult. About 90 per cent. of the inhabitants had become lukewarm toward vaccination and about 60 per cent. were distinctly opposed to it. Now for the results.

In 1912 smallpox made its appearance in the city in a sporadic form. Little attention was paid to the situation until late in 1913, when the epidemic blazed up and became so serious that Buffalo and other adjoining towns began to interfere. Business was affected, which is one of the most potent factors in these conditions.

As the local authorities could not or would not take the necessary measures to stop the epidemic, the Health Commissioner of the state, Dr. Hermann M. Biggs, was called upon to take a hand in the situation. The authorities were given to understand that unless they took the usual means immediately to stamp out the disease, the city would be placed under quarantine. The commissioners' suggestions were accepted and carried out. The epidemic was under control in a short time.

During 1913 the cities of New York, Rochester and Buffalo, with 6,000,000 people had 39 cases of smallpox. Niagara Falls had 196. The law excluding unvaccinated children from the public schools is rigidly enforced in the three cities above noted. The aforesaid anti-vaccinationist had made his brags that Niagara Falls had a larger percentage of unvaccinated citizens than any other city in the country. The result of this epidemic would seem to justfy his claim.

When the city took hold of the situation in an intelligent manner, the people tumbled over each other to get vaccinated. About 22,000 were vaccinated in a short time. Churches, theatres, libraries and all other places of public assemblage were closed. The schools were not closed, but all unvaccinated children were excluded. Inspectors were sent to every house to ferret out concealed cases. The sick were isolated. The usual results of the proper management of these epidemics were soon in evidence and the danger was over. The epidemic was easily preventable. The city has only itself to blame for the prevalence of the scourge. It is to be hoped that the lesson will not be forgotten in a hurry. Massachusetts may well take warning from this fresh example of neglecting plain and safe measures of protection against this loathsome disease.

Very truly yours,

GEORGE W. GAY, M.D.

Address.

IN MEMORY OF SILAS WEIR MITCHELL, M.D., LL.D.*

BORN FEB. 14, 1829; DIED JANUARY 4, 1914.

BY JAMES J. PUTNAM, M.D.,

Professor of Diseases of the Nervous System, Emeritus, Harvard University.

IT is not my purpose to attempt tonight an adequate characterization of the personal qualities or of the scientific and literary standing of the late Dr. S. Weir Mitchell. All that I propose to do is to offer, in the name of this society, some slight tribute of affection and respect.

No one can doubt that Dr. Mitchell will be remembered as among the foremost of American physicians, and as taking a high place among American literary men. The testimony of his innumerable and deeply grateful patients and of the vast circle of his professional friends, the long list of his medical and scientific publications, the still longer list of his literary works, and the many honorable tokens of appreciation bestowed on him by American and foreign societies and institutions, place this statement beyond question. He felt also the obligations entailed by his powers and opportunities, and kept his torches burning until the very last, so much so that the issue of *Science* published on December 12, 1913, only three weeks before his death, contained a memoir by him of his friend, the late Dr. John Shaw Billings. So predominantly characteristic was this endurance, until the last, of his vivacity, his eagerness and his activity, that one saw at once, in him, a man of the type made deathless by Tennyson's "Ulysses," longing, even in his closing years, to re-live the days that had been so full of joys and combats among his peers, and seeking to the very last new friendships and new worlds.

". . . I will drink
Life to the lees; all times I have enjoyed
Greatly, have suffered greatly, both with those
That loved me and alone; . . .
. . . . .
"For always roaming with a hungry heart
Much have I seen and known; cities of men
And manners, climates, councils, governments,
Myself not least, but honour'd of them all.
. . . . .
"I am a part of all that I have seen;
. . . . .
"Tho' much is taken, much abides; and tho'
We are not now that strength which in old days
Moved earth and heaven; that which we are, we are,
One equal temper of heroic hearts
Made weak by time and fate, but strong in will
To strive, to seek, to find, and not to yield."

* Read before the Boston Society of Medical Improvement, March 23, 1914.

But if Dr. Mitchell was distinguished for his talents, his industry, and his achievements, it is equally true of him that he was a warm-hearted lover of mankind both in a narrower and a broader sense. To all who cared for them he was generous of his time, his interest, and his affection, recalling, in this respect, his close friend, Sir William Osler. Such failings as he had were of a very human sort, tending to intensify the sense of relationship to others, and inducing him to make himself felt by them as a warm and living person. These genuinely human interests may have furnished one deep root for his strongly religious tendencies, and for the courtliness of manner which contributed to his charm. They also explain Sir William Osler's saying: "Of no man I have known are Walter Savage Landor's words more true, 'I have warmed both hands at the fire of life.'"

Endowed with an affectionate and highly social temperament, a brilliant mind and quick wit, he went on through life continually forming new friendships of the best sorts, as with such men as Phillips Brooks, and drinking forever at the self-renewing fountains of youth. Some men seem built to run smoothly in some one groove alone, and are driven by their destinies to become, this one a poet, that a man of science, and so on. But Dr. Mitchell's main desire, I think, was not so much to become eminent in any special lines as to leave no well-marked line of human interest untouched. The great variety of the subjects dealt with in his stories and his poems, the great variety—all things considered—of his scientific attainments, the great variety of temperaments to be found among those who could call themselves his friends, illustrate this point.

To Dr. Mitchell's friendliness I can bear personal witness. For though he was at the top of the ladder when I was at the foot, he went out of his way, at that period, on several occasions, to receive me as an equal and friend. Well do I remember dining at his hospitable table while still in the greenness of relative youth, and eating there the fatted terrapin, fatted, as I remember, in his own cellar, and served up with as good a sauce as any self-respecting terrapin could desire. My first acquaintance with him was, however, of still earlier date, for it is well-nigh forty years ago that he came as a consultant to visit a life-long invalid who had the distinguished honor of being almost my first patient. I can recall with perfect distinctness his pleasant manner on that occasion, and the dew of soothing encouragement which his visit left behind for both of us.

It is with great pleasure also that I recall a visit made in company with Dr. Mitchell to the Orthopedic Infirmary, which, if I am right, he transformed from a no doubt useful, but somewhat unknown, institution of one kind into a real scientific centre of quite a different kind, its old name, however, being retained. It was

here that many of his scientific researches on a clinical basis and many of his therapeutic studies were instituted, with admirable results.

These reminiscences of my youth may be capped by a story which he told me of his own, and which I re-tell with the greater pleasure that it seems to me to describe certain of his strongest traits. He had just become, he said, the assistant of his father, the eminent Dr. John K. Mitchell of Philadelphia, and was left by the latter, who had gone on a vacation, to hold the fort during his absence, with instructions to keep the practice going, and the patients alive, if possible, until his father should return. Dr. Weir Mitchell was then the rawest of young doctors, but already conscious of that undying well-spring of courage and resourcefulness which remained with him through life. Who should the first patient be with whom he had to deal, during this important interregnum, but a gentleman with an inveterate psoriasis, who had traveled the world over in the elusive search for health, and had come at last, as Naaman came to Elisha, to seek the senior Dr. Mitchell! What should be done? The improbability of a cure simply by repetition of old methods stared Dr. Mitchell in the face, and the fashion of that particular period was not favorable to the recommendation of dipping just seven times in Jordan. But his courage and his inventive genius stood him in good stead. He put the patient to bed, under the care of a trained nurse, and bled him copiously, at first daily, then less often, hoping almost against hope that the disease would admit itself starved out before the patient should succumb. Not without grave anxiety he watched the distinguished invalid growing weaker day by day. But at last, when even his hopefulness threatened to give way, the spots began to fade, and finally disappeared. Then came the fattening-up, and after this had reached the proper point he sent his patient off, well satisfied with the treatment he had had.

It is easy to see indications that these qualities of resourcefulness and daring played a part in Dr. Mitchell's career on many an occasion, and to imagine their influence where it was not visible. One might have thought that they would have tempted him to surgery. It is, however, an interesting fact that although at the request of Surgeon-General Hammond, and with the valuable aid of Drs. Morehouse and Keen, he organized an excellent hospital during the Civil War, where he gathered the large material to be used later for the classic work (by Mitchell, Morehouse and Keen) on "Gunshot Wounds and Other Injuries of the Nerves," and although he actually tried surgery, yet he found it to be distasteful, and soon abandoned it. My warrant for this statement is an interesting letter very kindly written to me by Dr. John K. Mitchell, in which he says that Dr. Weir Mitchell's father at first tried to dissuade his son from studying medicine at all, "as not being of the disposition or having the studious and persevering kind of character that would make him successful in it." Finding him determined to persist, however, he urged him to take up surgery by preference, as being better paid than medicine, and more in the way of development at that period, which was about 1850.

> "In consequence, in spite of a great distaste for surgical operations and even for bloodshed, my father worked at it, and worked in Paris as well as here, and even for a while performed operations. He saw the end of operations without anesthetics and the beginning of operations with anesthetics, but he soon proved to himself and convinced his father that he was not likely to make a surgeon."[1]

The hospital, it should be said, was planned for soldiers suffering from nervous diseases. But its scope

> "was soon enlarged to include men suffering from injuries of the nerves. Before long it was found necessary to build a new hospital with accommodations for 400 patients. Here a vast number of cases representing almost every conceivable type of obscure nervous disease was received. Few persons have at any time had such a field for the study of these maladies, and Dr. Mitchell and his colleagues made full use of their opportunities."[2]

The book on injuries of the nerves, written in 1864, has always seemed to me a contribution of high merit. It was no mere restatement of the views of others, but embodied personal observations giving evidence of keenness and originality. This experience in the army secured to Dr. Mitchell the opportunity to obtain consultations in neurological cases and led him to devote himself for the most part to the study of that subject, which held his interest until his death.

The subject of Dr. Mitchell's medical and scientific labors is soon to be reviewed by one well qualified to do the subject justice, and cannot be discussed here in detail. To those whose memory stretches back so far, the very titles of some of his original communications, as "Reflex Pain," and "Erythromelalgia," arouse stimulating recollections.

It was this same self-confidence to which I already have referred that led Dr. Mitchell, about fifteeen years ago, to deliver his bold broadside against the system then prevalent in hospitals for the insane, under which the superintendents had become to a great extent mere administrators, neither doing nor expected to do much of anything in the way of scientific work. The criticisms thrown out in this address

[1] Letter from Dr. J. K. Mitchell.
[2] *Brit. Med. Jour.*, January 10, 1914.

may have been felt as unjust by this person or by that. But the stand taken went a long way toward modifying for the better a custom which had become very much of a reproach, and made it easier for the superintendents, whose task had truly been a hard one, to demand laboratories and to set the machinery of research in operation.

I will add another trifling, but amusing character-story, given me by Dr. F. C. Shattuck, in which similar traits appear. Dr. Mitchell was, it seems, just leaving Milan after a temporary visit, when a gentleman came up to him in the hotel, asking if this was Dr. Weir Mitchell of Philadelphia and saying that he greatly wished to consult him, as he was a serious sufferer from insomnia. Dr. Mitchell declared that the carriage was at the door, and that his departure could not be delayed. But while talking with the would-be patient he noticed a brown stain at one corner of his mouth, and observed the ends of a number of big cigars sticking out of his vest pocket. Taking advantage of these hints he ventured the opinion that his insomnia was due to too much tobacco, adding the guess that he both smoked and chewed heavily. The astonished patient admitted the soft impeachment, and wrote to him a month later that his opinion and the treatment based upon it had been poductive of excellent results.

In some respects the mental attributes of the scientific student were as prominent in Dr. Mitchell as his genius for therapeutics; nor was he less competent in literary research. His interest in problems of physiology never slept, and the questions that presented themselves in the course of his clinical studies provided an ample field for its operation. One may get a good idea of the range of these studies from reading the Presidential Address before the American Neurological Association, delivered in 1909, where Dr. Mitchell runs over and in a measure sums up his views on some of the topics that had been before him earlier. It was, however, his elaborate studies on rattlesnake poisoning that mainly won for him praise and fame as a student of physiology. His first contribution on this subject was published in 1860, the last in 1886, both being brought out by the Smithsonian Institute. I believe it is true, however, that his interest in the matter was a continuous one, and if I am not mistaken, he made a visit to India in prosecution of his researches. Dr. John K. Mitchell writes to me, "I think the interest in snake poisoning began with some physiological investigations which he and William A. Hammond made together in respect to two South American poisons—corroval and vao,—both of which were said to have serpent venom mixed with them."

Toward the close of this investigation he sent to Dr. Oliver Wendell Holmes, who had long been a close friend, the skin of one of his largest reptiles, and received in return some witty acknowledgments, one of which I quote:

March 1, 1883.

My dear Dr. Mitchell,—

I am reminded of Pope's line:—

"Pleased with a—rattler—tickled, etc."

I don't think I have it quite right, but anyhow I am both pleased and tickled with my rattler's integument. It is magnificent,—not Tofana or Madame de Brinvilliers in all her glory of silks and satins, was clad like one of these. But what a parlous worm it was, to be sure! I didn't know that pizon sarpents ever grew so big as that. He must have shed venom as a milch cow does her amiable secretion. I have got him hung up on my revolver (book-shelves, that is), and he hides a library of volumes. And when he rattled, how he must have waked the slumbering watchmen, if any such were within range! I should greatly enjoy a short biography of this individual specimen of a race which owes so much to your pious labors.

Well, well,—asps and vipers and copperheads, and cobras and rattle snakes of reasonable dimensions I know, but a crotalus with the length and circumference of a boa-constrictor is a new acquaintance, whose *bark*, if I may so call his integument, is much more welcome than his bite would be.

Always, and this time thankfully, yours,

Oliver Wendell Holmes.

In 1906 Dr. Mitchell read, also before the Association of American Physicians,[1] the report of a number of interesting experiments of poisoning by the mescal button, which he said produced optical phenomena suggesting those occurring in migraine.

Psychologically speaking, there is considerable similarity, after all, between the tendencies that lead men to show energy and skill in research of scientific sorts, and those that draw them into investigations in literary fields. These latter fields were wandered over widely by Dr. Mitchell, and my attention has been called, in illustration, to the fact that he did at one time an excellent piece of work in retouching with new illumination the time-worn topic of the great Harvey, and that he succeeded in finding two hitherto unpublished Harvey letters.

As a practising physician Dr. Mitchell found himself constantly in situations where his interest in his fellow-men, harnessed to his courage, his originality and his scientific knowledge, made a strong team. We all remember the stirring breeze, one might almost say Northwester, excited by the publication of his series of little books beginning with "Wear and Tear" and "Rest in the Treatment of Disease," published in 1873 and 1875, respectively, and reaching its climax with "Fat and Blood," in 1877.

[1] Transactions, 1906.

His interest in these matters did not then cease, however, and as late as 1908 he published what may be called the last of the series, on "Rest Treatment and Psychic Medicine."

No one who recalls the earlier booklets of this series and was a living witness of the effect that they produced on the minds of the many toilers with the problem of neurasthenia, can fail to remember how strikingly the lesson was impressed, that when it comes to actually curing patients, the value of a certain amount of very important theoretical information pales into insignificance by the side of a system well worked out in its details. Rest is good, and food is good. But it is by no means always clear how to make these benefits available. Something else is needed. We know now, as we did not know in those days, when suggestion had not been adequately studied, that one or both of two influences must be present if one would really cure a nervous patient. Either he must be made to believe in the doctor, or he must be trained—slowly and painfully, if need be—to believe thoroughly in himself. Dr. Mitchell really used both of these means; for therapeutist of high order though he was, he fully appreciated, too, the value of independence, and sought faithfully to encourage it among his patients. Nevertheless, it seems clear that what his instinct felt to be the main need of the hour was that each invalid should have demonstrated to him, by the logic of facts, that his indigestion was not invincible, but that his physician's command of the situation was. What hungry person, even though a neurasthenic, could fail to welcome, without complaint of indigestion, the slender portions of skimmed milk with which the treatment started in? Or what fatigue-fearing patient could venture to speak longer of fatigue when the only effort allowed to him was that of brushing his own teeth?

Sir William Osler, in a letter to the *British Medical Journal* concerning Dr. Mitchell, writes interestingly of the clinical emergency which was the occasion of the theory of the rest cure. In Dr. Mitchell's own graphic terms he gives the history of the patient, a Mrs. S. of Bangor, Maine, telling of her school life, her marriage and nervous breakdown, and of the conflicting thoughts that passed through Dr. Mitchell's mind as he stood at the foot of her bed, doubtful what course he should pursue. The story ends with the statement that the patient was sent back to Bangor perfectly well, that she afterwards bore many children, and had been the soul of many enterprises in her native town. Dr. John K. Mitchell, in the kind letter above alluded to, tells me that this lady from Bangor, who was treated in February, March, and April, 1874, has recently written him a pleasant note accompanied with a portrait of herself.

Dr. Mitchell never taught in either of the great medical schools of Philadelphia, but he did excellent work for many years as trustee of the Carnegie Institute, and performed conspicuous service in securing the endowment for the splendid building of the College of Physicians in Philadelphia, now an important medical centre, containing a collection of books equalled, I believe, only by the Surgeon-General's Library at Washington. In this latter undertaking, as in so many others, his co-worker was the genial, single-minded, and public-spirited Dr. William W. Keen, who, from being his valued assistant in the army, became his life-long friend.

As a literary man, Dr. Mitchell has a large number of admirers, as we all know, and there are doubtless many members of this society who would be far better able to give a just estimate of his work than I can do. His output of stories and poems was very large, and I can aver that many of the poems are full of interest and charm. Those who are interested will find some account of Dr. Mitchell as poet in an article written by Robert Haven Schauffler and published in the *Century* for December. The poems dealt with there are finer specimens of his work than those which I shall quote, but in glancing over one small volume I was much struck with his power of endowing with the delicacy of his own feeling the sights and sounds of nature of which he was so fond. How the soul of the wave and fog and the soul of the man seem to interpenetrate, for example, in these lines:

STORM-WAVES AND FOG ON DORR'S POINT, BAR HARBOR.

The fog's gray curtain round me draws,
And leaves no world to me
Save this swift drama of the stirred
And restless sea.

Forth of the shrouding fog they roll,
As from a viewless world,
Leap, spectral white, and, pausing, break,
In thunder hurled.

Ever they climb and cling anew,
Slide from the smooth rock wall,
With thin white fingers grip the weeds
And seaward crawl.

In rhythmic rote o'er shivering sands
They glide adown the shore
With murmurous whispering of "Hush!"
And then no more.

Equally sympathetic is his appreciation of the harsh and tuneless but thrilling note of the sea-gull, as shown by the following verses selected from a much longer poem:

The woods are full of merry minstrelsy;
Glad are the hedges with the notes of spring;
But o'er the sad and uncompanioned sea
No love-born voices ring.

Thou silent raider of the abounding sea,
Intent and resolute, ah, who may guess
What primal notes of gladness thou hast lost
In this vast loneliness!

Where bides thy mate? On some lorn ocean rock
Seaward she watches. Hark! the one shrill cry,
Strident and harsh, across the wave shall be
Her welcome—thy reply.

Home! for the night wind signals, "Get thee home";
Home, hardy admiral of the rolling deep;
Home from the foray! Home! That silenced song
Love's endless echoes keep.

For more than one cause then, Dr. Mitchell, whose achievements kept him in the forefront of a large band of distinguished men throughout a big and brimming half century, and made him almost as well known as the city with which he was so intimately identified, deserves to be remembered as a great man, and one filled abundantly with the wine of the intellect and of the spirit. Always eager, always virtually working even when nominally resting, warmly sympathetic, and in the best sense self-forgetting, his eighty-five laborious years were spent in the courageous service of the truth as he saw it, and in the constant presence of ideals and visions, of which his books and poems, his estimate of Phillips Brooks and of his own invalid sister, and the admiring voices of his friends, give willing evidence. Very different though his life was, in its external features, from that of the Canadian poet, William Henry Drummond, in memory of whom he wrote some charming and warm-hearted lines, published in 1910, these lines well describe a side of himself that was perhaps not the one most widely known, and with them this slight sketch may close:

IN MEMORY OF WILLIAM HENRY DRUMMOND.

Peace to his poet soul. Full well he knew
To sing for those who know not how to praise
The woodsman's life, the farmer's patient toil,
The peaceful drama of laborious days.

He made his own the thoughts of simple men,
And with the touch that makes the world akin,
A welcome guest of lonely cabin homes,
Found, too, no heart he could not enter in.

The toil-worn doctor, women, children, men,
The humble heroes of the lumber drives,
Love, laugh, or weep along his peopled verse,
Blithe mid the pathos of their meagre lives.

While thus the poet-love interpreted,
He left us pictures no one may forget—
Courteau, Baptiste, Camille mon frère, and, best,
The good, brave curè, he of Calumette.

With nature as with man at home, he loved
The silent forest and the birches' flight
Down the white peril of the rapids' rush,
And the cold glamour of the Northern night.

Some mystery of genius haunts his page,
Some wonder-secret of the poet's spell
Died with this master of the peasant thought.
Peace to this Northland singer, and farewell!

[Since this hasty sketch was written, Dr. Mitchell's exceedingly interesting Chicago address has been published (*Journal of the American Medical Association*, May 9, 1914), telling of the work of the Medical Department of the United States Army during the Civil War, and something more of his own labors and those of his personal colleagues than was within my knowledge. In many respects this warm and able essay, written hardly more than a year before Dr. Mitchell's death, helps to place vividly before us the personality of its intensely human, life- and labor-loving writer.]

Original Articles.

REMARKS ON DIAGNOSIS AND TREATMENT OF DISEASE OF THE STOMACH.*

BY FRANKLIN W. WHITE, M.D., BOSTON,

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I WILL speak first of some new methods of diagnosis and some old methods which have new values. The history has always been the most important factor in diagnosis and still is, in spite of the development of new methods. The history holds first place and the x-ray and the chemical tests divide the second and third places between them. No one symptom is distinctive however. Moynihan's statement, that "hyperacidity is ulcer" is not strictly true. Hyperacidity is one of the most common conditions of the stomach, due to a variety of causes and as seen in our Out-Patient Department and in private work most cases recover under careful treatment and show no signs of ulcer. There is always a small group which do not yield to medical treatment and which are sent to the surgeon. These are the most severe and trying cases and the only ones which the surgeon ordinarily sees. Here the per cent. of ulcer is high and prompts the statement which Moynihan has made. We must remember, however, that cases are carefully sifted before reaching the surgeon and surgical statistics are only of value for the class of cases seen by the surgeon.

TESTS OF SECRETION.

The stomach tube still holds its own as a means of testing gastric secretion. The Desmoid test, Einhorn's bead test, the string test of secretion, are comparatively unreliable and are little used. Chemical tests were formerly far too highly valued and now have been put in their proper place. The old days when a physician sent a specimen of stomach contents to a laboratory or consultant for complete diagnosis have passed, never to return. We are no more able to make a complete diagnosis from the stomach contents *alone* than we are from the examination of the urine. The tests have much value and we could not do without them, but they rarely make an in-

* Read at the Boston City Hospital, Clinical Meeting, Feb. 12, 1914.

dependent diagnosis and in some cases like duodenal ulcer they show surprisingly little.

There has been little change in the tests used in the last ten or fifteen years with the single exception of tests for blood. Here we may say that too much activity has been shown. Starting with the old Guaiac test, new tests have been brought out each more delicate than the last, such as the Benzidin, Phenolphthalein and Toluidin tests. Extreme delicacy is not desirable in these blood tests, any more than in a test for lactic acid or for mucus. It is possible to find blood so frequently with a very delicate test that it has no value in diagnosis. Blood tests are used everywhere nowadays to detect and rule out gastro intestinal ulceration and the ideal test should be simple and easy and not too delicate or too coarse.

In my opinion the ordinary Guaiac test is a rough test, not delicate enough for clinical purposes. Since it will not show blood in the feces with an ordinary meat diet, how can we expect it to show traces of blood which come from an ulcer? A recent report from the Mayo Clinic shows that the Guaiac test did not detect blood in the stomach contents in more than half the cases of gastric cancer In my opinion the Benzidin test is the best test. It is recommended by all the recent text books; I have used it for years and found it simpler and easier and far more reliable than the Guaiac test for detecting traces of blood. Pure reagents clean glassware, and a proper technique are necessary for satisfactory results.

This test like most others which are used for blood can be made too delicate for clinical work. I think Schlesinger and Holst's modification of the test is the best, using two drops of gastric contents or two drops of a mixture of feces and water for making the test. The technique has been fully described by the author in previous papers.[1]

This test has been slow in reaching Boston for some reason, but I am glad to see it in routine use here at the hospital at the present time. I have given both the Phenolphthalein and Toluidin tests a thorough trial and find them less satisfactory for clinical work.

TESTS OF MOTILITY.

This is the most important gastric function or at least the one which makes the most trouble if deranged. The stomach tube has been our reliance in making this test by finding fasting residue in the morning, of a test supper given 12 hours before, but now the tube comes in for its share of criticism. The x-ray shows that the tube may coil up in the stomach and avoid the residue and make the test useless and misleading; in other words, the radiologist says,[2] "When we pass the tube in the morning to recover fasting contents and find none, we do not know whether none is there or whether we have simply missed it." Such a poor result may occur without doubt, but I believe it may be avoided by proper technique. In the first place the stomach tube should be a straight one, kept straight by being hung up by the tail. It is often kept coiled by the maker and often kept coiled by the physician who uses it. This is a mistake. The coiled tube is much more likely to kink and curl up in the stomach while the straight tube has little tendency to do so. In the second place it is very desirable to use gentle aspiration in obtaining fasting contents and not to trust to syphonage or expression through the tube. It is obviously impossible to start a syphon with only a few teaspoons of stomach contents. A soft Pollitzer bag of the type made by the Davol Rubber Co., easily detachable is the best aspirator and will, if the stomach tube is moved back and forth during aspiration, recover even small traces of fasting residue. Finally if the stomach is washed out at the end of this process with a bulb full of water I think we are practically sure to detect traces of food if they are present in the stomach. This test of the stomach motility with the tube is in my opinion a very reliable one and not easily replaced by any other method.

Tests of motility made with the stomach tube and by the x-ray after a bismuth meal are not exactly comparable. They run parallel to one another in a general way, but the natural meal may leave the stomach either earlier or later than the bismuth meal. The cause for this we do not know. It may be that sometimes the bismuth acts as a foreign body and hastens emptying of the stomach or that in other cases it sticks to the wall and remains longer than food. The time of passage of natural meals is what we really wish to know.

In diagnosis of the motor power of the stomach the tests probably have equal value. The difference is that for many years, thousands of men all over the world have used the tube test. We have had enormous experience with it and know how to interpret its results; we have had much less experience with the x-ray method at the present time.

THE X-RAY.

The x-ray has been a very great help in diagnosis of diseases of the stomach. It shows the position, size and shape of the stomach as no other method will do, and most important of all it shows constant deformities in outline, due to ulcer, tumor or adhesions. It has been a great help in separating the medical from the surgical stomach cases. So much new data about the stomach has been obtained by the x-ray that at present it is in a somewhat undigested state and rather confusing. Some men use chiefly plates and give us one set of results, other men use chiefly the screen and give another set of results. The bismuth meals used are quite different in both

size and quantity. Different amounts and kinds of foods are used and different salts of bismuth and barium so that the results obtained by different men are not comparable. It seems as if a standard bismuth meal just as we have a standard Ewald-Boas test breakfast would be a great advantage.

In addition the x-ray men are not entirely in accord among themselves on important points of technique and diagnosis. To speak of one or two specific instances: Some men lay great stress on the importance of diagnosing a six hour bismuth residue in the stomach. Holzknecht has developed an elaborate scheme based on such observations as, "Atony never gives a six hour residue," "Gastric ulcer always gives a six hour residue." This is too dogmatic and is not true with the bismuth meals generally used. Atony may give an eight or ten hour residue and in fully half the gastric ulcers the stomach may empty in six hours. Other x-ray men consider a six hour residue the least important factor in diagnosis, merely a symptom depending on a great variety of causes.

Spasm of portions of the stomach has been a great source of error in diagnosis. They come from too many causes outside the stomach such as the gall-bladder, appendix, renal calculus, tabes and drugs, to be of much value in the diagnosis of gastric ulcer.

The x-ray appears to be somewhat in the position of the chemical tests ten or fifteen years ago, when it was said "lactic acid means cancer," "free HCl and a trace of blood means ulcer." These things have not proved to be true; there is a danger in being too dogmatic with too little experience.

On the other hand direct evidence of constant deformities has great value, as for example in duodenal ulcer. In a modest series of private cases in which an x-ray diagnosis of duodenal ulcer was made, the cases which came to operation proved the x-ray diagnosis to be correct in every instance. (I must admit that all these cases were typical and a definite diagnosis was made by older methods before sending them to the radiologist for confirmation.) Whether the reverse is true, or not, that is, whether a negative x-ray examination means no ulcer, I cannot say. My experience does not go so far. It is not easy to prove since the cases are less likely to be operated upon.

With adhesions about the pylorus it does not seem fair to expect the x-ray to show the cause, such as a previous ulcer, or gall bladder inflammation, but simply to show their presence by the deformity they produce, and let other clinical methods decide about their origin.

There is some doubt whether or not the x-ray can make a diagnosis of cancer of the stomach earlier than other methods, except in an occasional case. It certainly seems possible that it may detect mechanical changes in the wall of the stomach due to cancer of the fundus, or away from the pylorus, before changes in secretion have occurred or any considerable disturbance of the general health. I am sorry to say that I have had little experience with early cancer as most of the cases that are sent to me for diagnosis have already passed the early stage.

The x-ray is not an independent method of diagnosis. It should be used with the history and the chemical tests to get the best results in difficult cases. One x-ray man of this city said to me recently, "I have to urge men to make the chemical tests in the stomach cases which they send to me for diagnosis. They apparently feel that if an x-ray examination is made, nothing more is necessary." This attitude is wrong and shows that the pendulum is swinging too far toward the new method.

SYPHILIS.

The relation of syphilis to ulcer of the stomach is important. Syphilis has been always considered one of the rarest diseases of the stomach. We may have to change our opinion about this. The Wassermann reaction has detected an enormous amount of latent syphilis in heart, vascular and renal cases and may perhaps do the same with regard to the stomach. My attention was called to the importance of syphilis by having several successive cases of peptic ulcer this fall with a triple positive Wassermann reaction. This may be simply a coincidence, but it may be more than this. Any patient who has syphilis may develop a peptic ulcer as an independent disease, but it is also possible that some of our chronic ulcers are syphilitic in origin. Two of the patients referred to were given anti-syphilitic treatment and treatment of the stomach combined and made an excellent recovery. The cases are too recent to know about recurrence and are not conclusive.

It would be much more definite if we find we can take such cases which have resisted ordinary thorough medical treatment and promptly cure them by giving the ulcer anti-syphilitic treatment. I think the subject is so important that it is worth while to try the Wassermann reaction in every chronic peptic ulcer. We may save some from the necessity of operation. I can see no reason to expect the x-ray to help us to distinguish a syphilitic ulcer from other ulcers of the stomach.

CANCER FROM ULCER.

The question of the development of cancer from chronic ulcer of the stomach is important and there is much conflicting opinion about its frequency. The old figures gave us six or seven per cent. of cancer developing from previous ulcer. Moynihan and the Mayo clinic place the figures about ten times as high, namely they believe that 60 to 70% of gastric cancer de-

velops from previous ulcer. It is difficult to reconcile these high figures with our clinical experience. I recently looked over my records of 100 cases of cancer for evidence on this point and found that a large majority of the cancer cases had a short history of digestive trouble; that less than one quarter of the cases had had any previous digestive trouble, and that less than one-tenth presented real evidence of preceding ulcer. Furthermore in a small group of ulcer cases followed for years without operation, the development of cancer is a great rarity.

While this clinical evidence is not absolutely conclusive it leads me to believe that the above figures, 60 to 70% are really far too high to represent the average run of cases of cancer of the stomach; that while they may be true for the carefully sifted and selected material of these surgical clinics, they do not represent the conditions met with in every day practice. My own impression is that less than one quarter of the cancers of the stomach develop from previous ulcer and perhaps the actual figures are much lower than this. Bearing these things in mind it certainly is not desirable to send every ulcer case to the surgeon as soon as the diagnosis is made, neither is it desirable for the surgeon to resect every accessible ulcer of the stomach.

TREATMENT.

I will speak briefly of a few of the newer drugs. Hydrogen peroxide, used internally by Petri in 1908, has a great power of lowering the acid of the stomach. This was first thought due to depression of the acid secretion, and later to neutralizing it by the alkaline product of the stimulated surface epithelium. I have found doses of two to four teaspoonfuls in a glass of water after meals very useful for temporary relief in hyperacidity of all sorts. Big doses such as Petri used (nearly two oz.) are likely to irritate the stomach and cause nausea. I have used it in conjunction with alkalies and oils and a proper diet.

Some new drugs have appeared for increasing the acid in the stomach. Acidol tablets which equal 12 drops of dilute HCl and are taken in a tumbler of water, have no advantage over the old acid preparation except convenience in carrying about, and cost much more. Oxyntin, which only increases the *combined* not the *free* HCl in the stomach can have little effect on peptic digestion.

Pankreon a preparation of pancreatin, much advertised and used on the continent, is claimed to be unaffected by the gastric fluids and to reach the bowel in an active state. The Council of Pharmacy of the A.M.A. found that it was promptly digested by pepsin in acid solution and thus rendered inert in the stomach before reaching the bowel.

Hormonal the peristaltic hormone of Zuelzer given with the object of physiologically stimulating peristalsis has proved so toxic and dangerous in occasional cases that it seems unwise to use it.

Anesthesin, an insoluble local anasthetic similar to Orthoform in its action, has proved useful in sensitive stomachs in nervous people. The modern method in all nervous dyspepsias, however, is to treat the patient more and the stomach less. We really depend on rest, hygiene, sedatives feeding up and encouragement, while most of the "special apparatus," intra-gastric douches, and electrodes, powder blowers, gyromeles, etc., which lumbered up the older textbooks on diseases of the stomach are rarely seen or used today.

Even lavage in spite of all the ingenious apparatus devised, is much less used than formerly, one reason being that the patient whose stomach persistently refuses to empty without help, wisely seeks a surgeon.

On the other hand not every patient with fasting residue in the stomach needs a surgeon. The stomach like the heart may have its periods of dilatation and decompensation and in some cases of atony and ptosis may fail miserably of emptying itself now and then. Here lavage with rest and diet may work wonders. I have seen within a week two patients of this type in whose fasting stomachs I found a half a pint of coarse food residue ten or fifteen years ago. Medical treatment gave prompt relief and they have been well for years.

Duodenal intubation is a new method used by Einhorn for treatment of peptic ulcer. A small soft rubber tube is passed into the duodenum and left in place continuously for ten or twelve days and food is poured through it directly into the bowel. The object is to free the ulcer from the irritation of food and gastric secretion and heal it quickly. A few men have used the method and reported good results, but it has not come into general use. I have tried it in a few cases with poor success. The constant presence of the tube was usually trying and the feeding often caused distress. I must confess that the continuous presence of an indigestible foreign body is not my idea of "giving the stomach a complete rest." The method is still on trial.

I have said nothing about diet in this brief review, not because it lacks importance, but because I have discovered nothing really new within the past year or two.

In surgery I notice less tendency to operate on non-obstructive peptic ulcers, evidently because the results have not been as good as in the obstructive cases. The x-ray clearly shows that in the former the food continues to pass out through the open pylorus instead of by the new surgical opening. The food continues to irritate the ulcer and the new opening tends to close and conditions are left as before operation. This makes the surgeon less eager to operate on some border line non-obstructive cases, and where operation is clearly indicated by reason of failure of medical treatment, inclines him to

close the pylorus at the time gastro-enterostomy is done.

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SIGNIFICANCE OF MINIMAL MACROSCOPIC GASTRIC STASIS.

BY A. EVERETT AUSTIN, M.D., BOSTON,

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VON NOORDEN long ago called attention to the fact that while the stomach was subject to abnormalities of secretion and motility, the latter, particularly when they produced retention, were the only ones to actually cause a change in the metabolism of the body, because much of the nutritive value of the food is destroyed by fermentative and putrefactive processes. True, the hypersecretions by producing pain induce the patient to eat less food, and emaciation follows, but if the patient can be assured that a generous, well selected diet is beneficial to his condition rather than otherwise, and is the very best means of controlling the suffering, an equilibrium can soon be established; this cannot be done where stasis exists dependent on pyloric narrowing, since almost every effort to increase the amount of nourishment is overcome by the periodical onset of vomiting or the increased distress of the victim. Hence it behooves us to detect the very earliest manifestations of retention in order to forestall the subsequent malnutrition. At just this point we come upon two causes of delay of gastric contents in the viscus, as unlike as the two regions are described to be where we are supposed to pass our future life. Unfortunately, too, the clinical signs in the early stages differ from each other only in degree and that largely of time. When retention or delay arises from gastric myasthenia, a meal of a beefsteak, four tablespoons of mashed potato and bread and butter should leave the stomach in eight hours while, if due to pyloric narrowing, it may not leave for fourteen hours. As can be seen, there is no hard and fixed line of division, yet everything depends on this decision for the following reasons: a gastric myasthenia is either associated with a general weakness of the whole muscular system so commonly seen in the Stiller type with narrow chest and acute substernal angle, concave epigastrium and protruding region about the navel, often congenital or is the result of a general enteroptosis following repeated child bearing, hernia, or the weakening of abdominal muscles by laparotomy scars. Here operation other than a shortening of the gastrohepatic ligament, whose value has not been fully demonstrated, is of no avail, and only roborant measures can be employed The other condition, true pyloric narrowing, is dependent on scar tissue from ulcer, cancer or adhesions from cholecystitis. Intermittent spasmodic narrowing due to gastric hypersecretion is maintained, but at least it cannot be common, and there must be periods when free egress of the contents occurs and retention of any considerable degree ceases. For stasis due to pyloric narrowing, only gastrojejunostomy gives any permanent relief, while this operation does not aid myasthenia in the slightest degree. Thus we are driven to employ our greatest ingenuity in separating these conditions so essentially unlike, but with such similar manifestations. Nor is it permissible to wait until visible peristalsis and gastric rigidity make the differentiation so evident that "He who runs may read." Then the stomach has become distinctly dilated and as a result of the fermentation and vomiting the patient has become more or less emaciated, adding greatly to the danger and prolongation of the convalescence from the operation which must follow. An illustration of this is shown in the following case.

CASE 1. A man, 42 years of age of excellent habits who had had "stomach trouble" not clearly defined for a long period (two or three years, as near as he could recall), began three months ago to suffer more severely. He had epigastric pain after every meal, but it was more severe when he ate heartily, for his appetite remained good. There were eructations of sour fluid 3-4 hours after the food and once in two days, particularly at night, vomiting of large quantities of sour tasting fluid containing recognizable food fragments without any particular association of pain other than the distress mentioned. He had lost 20 pounds in weight though he was eating well and his movements were irregular and induced largely by laxatives.

The physical examination showed excellent teeth, no cachexia, no glandular involvement, while the heart and lungs were without significance.

The stomach was found to fill the whole abdomen; spurting could be felt and heard over the pylorus, but there was no mass, no resistance, but little tenderness, and no gastric waves could be distinguished. The fasting stomach washings, 18 hours after food, contained all forms of food fragments with numerous sarcinae and free hydrochloric acid. The gastric contents six hours after a chicken sandwich amounted to 400 c.c., had a musty odor with many bubbles, and the solid portion was one-third of the whole. Free hydrochloric acid was present and the acidities were 33 and 98. Sarcinae were abundant, but there were no Boas-Oppler bacilli. The clinical diagnosis was pyloric stenosis due to ulcer. The surgeon's report was duodenal adhesions, scar of an old duodenal ulcer, constriction of the ascending portion of the intestine and collapse beyond. The stomach was enormously dilated but no glands were found anywhere.

Of course every effort should be made to make a much earlier diagnosis than was made in this

case, and various articles of food have been suggested which are known to leave the stomach with more or less difficulty, such as currants, raisins and rice, while it has come to my attention that lima beans, particularly the outer coverings, are long delayed in their departure. Then again we are advised to depend on the microscopical detection of food fragments at a sufficient period after an evening meal. Unfortunately, the former articles may pass out of a stomach with moderate pyloric stenosis within the prescribed time, as is shown by the following case:—

CASE 2. A girl of 29 years was well to 5 years ago, when she began to have pain coming on after eating. She remained in a hospital 8 weeks, where her stomach was washed out 30 times. She was better for 6 months, when her former pain after eating recurred. Two years ago she returned to the hospital, where her appendix was removed. Again there was a remission of her symptoms for 18 months, when her old symptoms returned much exaggerated. At present she has gaseous and fluid eructations which are very acid and come on one to two hours after food. She has pain at this time which she localizes over the old appendix scar.

If the pain is severe, she vomits, an event which occurs about 4 times weekly, and may occur at night; the vomitus is always very sour and contains food but never blood. She has lost 13 pounds in weight during the six months, but confesses that she has eaten much less for fear of aggravating the pain. Her bowels move every second day and the stools are very hard. Menses always painful and last 3 days but no clots are ever passed.

Physical examination showed a very pale individual with gums and conjunctivae almost colorless. The hemoglobin was 75% (Tallquist). The teeth were good, the tongue lightly coated, the chest narrow with acute substernal angle, but the heart and lungs were without significance. The stomach's dimensions were 21 vertical by 23 cm. horizontal, extending 5 cm. below the navel and 8 cm. to the right of the median line. There was a well defined tender spot just above and to the right of the navel and a spot of similar character in the right back just below the insertion of the tenth rib. What was taken for a contracted pylorus was felt under the tender spot in front, but no masses nor undue rigidity were detected. The fasting stomach after the evening Riegel meal with the addition of rice and raisins contained no gross food fragments nor mucus. The stool after three days' meat-free diet, contained no occult blood (modified Weber). After the test breakfast the gastric content had free hydrochloric acid with acidities of 60 and 85. There were no sarcinae nor mucus. The radiologist reported that the pylorus was well defined, the first part of the duodenum filled, an enlargement of the stomach in the longitudinal direction, and on standing the lower border was in the pelvis; no stasis could be discovered. The operation showed an ulcer scar on the posterior surface of the duodenum adjacent to the pylorus with numerous adhesions, for which a gastrojejunostomy was done.

It is almost incredible that there was not, at periods, sufficient pyloric narrowing to cause the vomiting, yet the raisins passed through without hindrance.

Then again we may err at the other extreme when some food residue is found by lavage of the fasting stomach, but the laparotomy shows no narrowing and the stasis must be ascribed to myasthenia, as is proven by the case which follows:

CASE 3. A man, 45 years of age, an architect, of excellent habits, using neither tobacco nor alcohol, had been well to two years ago, when a torticollis had been relieved by cutting the muscle, following which he had passed ten months in a sanatorium for neurasthenia. For the five months subsequent to his coming under my care he had had sour stomach, acid eructations, water brash, and his bowels had been confined, requiring the frequent use of laxatives. He thought he felt better when there was food in his stomach than when it was empty, but food did not play an important part in his discomfort. Eructations often continued for 6 hours after he had eaten. At no time was there any severe pain, except one night recently when the pain in the epigastrium was so severe that he vomited food which was extremely sour to the taste. He was sure the vomitus was not brown nor red. His weight had remained constant for many years at 153-5 and he weighed 155 in my office. Examination showed his head to be still slightly drawn to the left, his teeth good, his tongue but lightly coated and his sclerae free from yellowing. Sound heart and lungs were found and no involvement of the glandular system was discovered. His abdomen was full, symmetrical and without tender points. Under inflation the stomach extended from the 6th rib to two fingers above the navel on the left, while on the right it extended beyond its usual limit and the tympany encroached on the liver space. Under the right costal border a hard mass could be felt to slip under the examining fingers on full inspiration, but was not perceptible on expiration. It gave the impression of a sausage-shaped body, but only the lower border was perceptible. The fasting stomach after the evening Riegel meal contained food fragments in very diminutive quantities, upon lavage, among which the raisin fragments could be detected. After a test breakfast the contents contained no free hydrochloric acid, but the total acidity was 85. No sarcinae nor Boas-Oppler bacilli were found. The feces after a meat-free diet never contained occult blood. The urine was normal. The radiologist reported a stomach normal in size, shape and contour, but under the screen no food could be seen to pass through the pylorus. The individual was passed on to the surgeon with a provisional diagnosis of early malignant disease of the pylorus, when, much to my surprise, when the abdomen was opened by him an almost gangrenous gall bladder was displayed containing one large stone and much debris, but the pylorus was entirely normal and entirely free.

Under such conditions, of course, we must hold a myasthenia responsible for the minimal retention, but such an occurrence warns us against placing too much confidence in the slight stasis which this meager remnant or microscopic residue represents.

Much discussion has been aroused as to

whether, when lavage of the fasting stomach produces food fragments, while the radiograph at a six-hour interval shows no stasis, we are to place our reliance on the one or the other. It would seem that the explanation of the other horn of the dilemma, when radiology shows stasis and the tube does not, is not explainable by the bending of the tube by which it follows the lesser curvature, since it was one of the teachings of Boas that the lower border of the stomach could be determined by palpation of the tube after it was introduced. Especially when lavage follows, this explanation would be less tenable because, after the introduction of two liters of water, in four portions, any food residue must be brought to light unless we were dealing with an hour-glass constriction. Huerter thinks that the excessive hydrochloric acid in many instances of myasthenia keeps the pylorus closed much beyond its usual period, while the acid contents entering the duodenum are being neutralized and thus simulates a minor stasis when lavage is employed, while the neutralizing effect of the contrast meal (bismuth subcarbonate) checks this tendency when radiology is employed. If these premises are true, then in case of contradictory results, we must rely with greater assurance upon the radiologic method. At least we must employ both methods and, if they agree, we proceed to operative intervention with greater confidence. It has been my experience in many instances where lavage showed morning residue and the radiogram did not indicate stasis, that subsequent treatment with alkalies and atropine brought about a condition where lavage no longer brought forth food remnants under the same restrictions as formerly.

Now, since raisins have proved deceptive for testing motility and the so-called microscopic retention is evanescent, coming and going without any known cause, if many observations on a myasthenic individual are made, we must have recourse to some more reliable method for the detection of early pyloric stenosis. The criterion which I have adopted is the one recommended by Hausmann and consists of the retention of starch granules of sufficient amount to be visible to the eye at least 12 or more hours after a liberal portion of boiled rice or rice pudding has been eaten in conjunction with meat, potato, bread and butter. All patients after such a meal come to the clinic fasting, when they are washed out with one or two liters of water in portions of 500 cem., according to whether the first returns clear. As it is very difficult to determine whether a residue, if present, is made up of starch remnants or mucus mixed with partially digested epithelial cells, on account of the similarity of color, the washings are allowed to stand in a conical glass when the solid part will soon fall to the bottom. The supernatant fluid is then poured off and Lugol's solution added to the solid portion, with which it is thoroughly mixed. An instantaneous bluish coloration will appear, were the residue starch. No matter how small the remnant may be apart from mere isolated microscopic granules, it becomes readily visible and may be found as late as sixteen hours after the rice is taken where the stasis is marked, but still not so gross as to cause large accumulations of residual food in the stomach as is found in adadvanced pyloric cancer and callous ulcer. When this condition exists, which should be verified by at least two examinations, and better three at week intervals, I have always found that there is a pyloric narrowing due to organic disease, as verified by operation, or where that was refused, by steadily increasing difficulty in the stomach's emptying itself and greater residue in the period following. One must not rely upon a single instance of this occurrence, for I have repeatedly seen a fairly copious amylaceous residue at the first lavage, disappear at a subsequent washing, under the identical conditions as to amount of food and time, one week later.

Such temporary and periodic increase in the weakness of a myasthenic stomach to which such retention is due, arises from various causes. I have seen them after a severe cold where there has been much irritating cough, with an accession of constipation and more rarely when there is a coexisting chronic appendicitis. It has been my practice, too, to add the raisins to the evening meal, and have been very much surprised in routine washing of the fasting to note how infrequently fragments of the fruit can be found and how much more constantly the gross starch remnants are discernible when the residue is treated as suggested. There is no explanation for the fact that raisins will pass through an opening which will hold the rice back. Some have offered the explanation that it is not the narrowing as such that holds the rice, but the depression in the stomach's surface afforded by a chronic ulcer, much as the bismuth adheres which produces the flecks in the radiogram and persists on the wall of the organ long after the rest of the contrast meal has disappeared. If this is true, then the minimal macroscopic residue would have a double significance of pyloric narrowing or an old ulcer scar, not necessarily at the pylorus. My personal experience, however, has led me to believe on account of the ephemeral nature of this finding that it is due to myasthenia and for some unaccountable reason, the weakened stomach can free itself more readily from the raisins than from the starch. When the residue is persistent and there is progressive narrowing, then the rice and the raisins pursue a parallel course and both can be removed at every washing. Another suggestive factor in favor of the theory that microscopic amylaceous residue may be found from adherence to an ulcer scar is the simultaneous presence of bile in the wash water, while when any considerable amount of starch (*i.e.* macroscopic) is found, bile is rarely, if ever found. Hence microscopic starch granules with bile are indicative of chronic ulcer with imperfectly closing pylorus or an exaggerated myasthenia, while macroscopic rice rem-

nants without bile may be interpreted as meaning an actual stenosis without, of course, indicating its nature.

Naturally, too, when retention results from the idiopathic pyloric closure of hypersecretion or continuous secretion, if such exist, which many doubt, the bile is never found; such at least is my experience that when from the fasting stomach any considerable portion of highly acid clear gastric juice may be drawn, this is never stained with bile. Similarly, if the wash water responds promptly and markedly to reagents for free hydrochloric acid when it is impossible to express the undiluted contents, and any considerable amount of starch is found, our color reactions are rarely disturbed by the peculiar coloration of bile. We may summarize these isolated facts by saying that: (1) A limited number of rice grains visible in the wash water only by means of the microscope, 12 hours or later after the evening meal when accompanied by marked hydrochloric acid reaction or bile, means a spasmodic closure of the pylorus or a myasthenia and is rarely permanent. (2) Currants or raisins may be retained for this period in a myasthenic stomach or sometimes pass through a moderate narrowing of the pylorus. (3) A distinct amylaceous residue made visible to the unaided eye by means of Lugol's solution, which is not accompanied by bile, but is by hydrochloric or organic acids, if persistent, means a mechanical hindrance to the egress of food from the stomach. (4) A wash water containing hydrochloric acid freely and microscopic starch remnants may indicate an old ulcer scar without a trace of gastric stenosis. (5) A minor gastric retention detected by lavage and unconfirmed by the radiograph is proof of pyloric spasm rather than stenosis, and will often disappear upon appropriate medical treatment. (6) A radiographic demonstration of gastric stasis, not substantiated by lavage, is oftenest due to myasthenia since the weakened gastric walls cannot free the stomach from the heavy bismuth within the accepted time.

BANTI'S DISEASE WITH REPORT OF SUCCESSFUL SPLENECTOMY.*

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IN 1866, Gretzel, describing enlargement of the spleen in an infantile case from the clinics of Griesenger, first used the term, "splenic anaemia." Previously, non-leukaemic enlarged spleens had been described as pseudo-leukaemias.

There were few cases reported from that time until 1882, when Banti, an Italian pathologist, published his studies of cases of splenomegaly of unknown etiology, concluding that they constituted a distinct clinical disease, and divided this disease into three stages.

First, the stage of splenic enlargement with secondary anaemia; second, the stage in which the liver becomes palpable; and third, the ascitic stage. The secondary anaemia presented a fairly distinctive picture, in which the numbers of erythrocytes were ordinarily decreased, but not constantly, the color index lowered, nucleated reds or myelocytes were never found, the hemoglobin was decreased, a leucopaenia was sometimes present.

He was the first to give a comprehensive description of the pathology of this disease, as follows:[1] The spleen is much increased, weighing from 1 to 1.5 kilograms. The shape is preserved, the surface smooth and regular. The capsule is thickened, and on section, the substance is dark brown and hard, showing thickened trabeculae and whitish nodules, which correspond to the Malphigian bodies.

Microscopically, the Malphigian bodies were found in various stages of fibrous transformation, the process beginning around the vessel, within the body. A certain amount of hyaline transformation was also apparent. The splenic pulp showed no special enlargement of the venous channels. In the earliest stage, there may be found in some of the veins, a lining of large cells, making the vessels appear almost like an epithelial channel on cross-section. These large cells have a limited amount of protoplasm, and large nucleus of a diameter of from 5 to 8 microns. The same kind of cells are found in the reticulum surrounding the veins, and in some of the channels, the cells have become loosened from the walls, and fill the lumen of the vessel, giving the appearance of a cancerous alveolus. In some spaces actual giant cells and occasionally cells containing normal or degenerated red corpuscles were observed. The reticulum of the pulp was evidently thickened and of a hyaline appearance. This was always a conspicuous feature, and distinguished the tissue absolutely from normal spleen. The thickening of the reticulum is in proportion to the duration of the disease, and, finally, areas of the splenic pulp may become entirely fibrous.

In view of the process of fibrous transformation, and the multiplication of cells within the veins, Banti proposed the name, "fibro-adenia." He does not believe there is a new-formation of fibrous tissue in the ordinary sense of the term, but rather, an increase of the reticulum, from exudation from pre-existing cells.

The liver is reduced in size, granular, and hard. In earlier stages of the disease, it may be normal in size, and smooth. Microscopically, there is found a marked inter-lobular cirrhosis like that due to alcohol.

Banti calls particular attention to sclerotic endophlebitis of the splenic vein, causing irregular thickening and sometimes even athermatous and calcareous foci. These conditions also extend into the portal vein, and in the

* Read before the North Pacific Surgical Society at Seattle.

ascitic stage of the disease, even the mesenteric veins may be affected, though in less degree than the splenic. He found the disease more common in males, in young adult life, and described a symptomatology dependent on the weight of the spleen, the anaemia and ascites. He believed the anaemia to be due to the increased hemolytic action of the spleen.

He based his opinion that the spleen is primarily responsible for the clinical picture, on the following considerations. First, splenomegaly always preceded the anaemia; secondly, hepatic changes appeared last of all; thirdly, the changes in the spleen seemed to him to be peculiar to the disease, and the success of splenectomy suggested the diseased spleen as the chief factor in the cause of the disease.

Since the publication of Banti's first article, much has been written on this topic, and a diversity of opinion expressed which is most confusing. At present there seems to be three divisions of thought. First, those agreeing with Banti that the disease as described by him, constitutes a distinct clinical entity, accounting for a part of the splenic anaemias. Second, those who believe that Banti's Disease is but the terminal stage of primary splenic anaemia. Third, those who believe that it is not a primary disease, but is secondary to cirrhosis of the liver—a pre-cirrhotic splenic tumor.

In the cases recorded in literature so great has been the variation in the pathology, in the blood picture, and in the duration and intensity of the symptoms, that most clinicians and pathologists agree that Banti's Disease as a clinical entity does not exist; but reserve the term for the terminal stage of primary splenic anaemia, which, they agree, is a fairly definite clinical entity of unknown origin, characterized by a chronic course;—enlargement of the spleen, anaemia of a secondary type, a marked tendency to hemorrhage, and a liability in late stages to be associated with jaundice, cirrhosis of the liver, and ascites.[2]

As to the cause of this primary splenic enlargement, it has been suggested that it results from toxines absorbed from the gastro-intestinal tract, but this has not been proven; that it is secondary to the endo-phlebitis of the portal and splenic veins, but experimental studies occluding partially or wholly the splenic veins have failed to produce anything but primary congestion, followed by partial or total atrophy; that it is due to stasis in the portal circulation, but the splenomegaly always occurs before stasis is established; that there is a relationship between splenomegaly and tuberculosis, syphilis, or chronic malaria, regarding which it is interesting to note that Cohen of Philadelphia reports a case of typical clinical splenic anaemia where, after the use of large doses of quinine, plasmodia were found circulating in the blood. Recently, Gibson[3] reported that in five cases of Banti's Disease, a post-mortem study of the spleens disclosed a streptothrix present in each one.

Banti's theory of the anaemia being due to the increased hemolytic action of the spleen is acceptable to Rodman and Willard,[4] who draw an apt comparison between the hyperactivated thyroid exerting a deleterious action on the body, which is ameliorated or cured by the partial or total removal of the thyroid, and the hyperactivated spleen producing symptoms which are likewise relieved by the removal of the spleen. Others, notably Dock and Warthen and Stengel[5] take the stand that this is due to a bradyplastic condition of blood-forming organs and point to the fact that they found a marked hyperplasia of the hemo-lymph glands lying along the thoracic aorta and in the retro-peritoneum, which contained large numbers of cells holding red blood corpuscles and blood pigment, and in view of the pathology of the spleen, they concluded that this condition was compensatory.

Whether or not splenic anaemia can be considered as a clinical entity is still unsettled. We have a disease, the pathology of which is due to a chronic toxic irritant, having a selective action on the spleen; whether this toxin arises from one or several causes, is unknown but the work but recently done by Billings[6] in the treatment of Hodgkin's Disease, as well as the discovery that eclampsia is but the expression in the kidneys or liver of a ferment generated in the pathologic placenta, leads us to believe that this discovery when made, may change our entire conception of this disease.

The history of the case reported is by Dr. Moser who referred the patient.

A. W. White boy, aged 18. Family history negative. Father, mother, brothers and sisters, all living and well.

Patient came to us June 1, complaining of being continually tired, and of having a sense of fullness and dragging in left hypochondriac region. For the previous two years the patient has a sense of not being well, with intermissions of relative improvement; he noted times when his skin had a distinct yellowish color; various physicians had told him that he had liver trouble, for which he was treated. He was irritable and refractory to parental control; appetite was poor, often being entirely absent, and was somewhat perverted; at times he was nauseated and would vomit. This latter was apparently uninfluenced by the kind of food taken, or by the time of ingestion.

Of previous illness, the patient had had measles; no malaria, and no evidence of ever having lived in a malarial country. In July, 1909, he had received a gunshot wound, which necessitated amputation in the upper third of forearm. There ensued a discharge of pus from the wound and from an axillary abscess, which was cured by "scraping the bone" under anesthesia.

The patient is slender, of poor musculature, drooping shoulders, slow gait, and tired facies; the conjunctivae are jaundiced, as is the skin of the entire body. The teeth are sound. The gums are firm, and have no dark colored line on them. The

tonsils are neither enlarged nor scarred. The pupils are equal and react to light and distance. The thyroid gland is not enlarged; the thymus is not detected; the lymphatic glands are not generally palpable. The heart action is good; the apex beat inside the nipple line in 5th intercostal space. There are no murmurs, nor arrythmia. The lungs have good excursion, and no abnormal respiratory sounds are detected.

The abdomen has full contour, and is slightly distended. No "Caput Medusae" is present, and the navel is retracted. There is dullness in the flanks, which dullness seems to shift with changes of body position. The liver is not palpable at border of right costal arch.

The spleen can be easily palpated, and its lower border extends one-fourth of the way from left costal border to the umbilicus; it is not rigidly fixed, but is slightly movable; percussion over the splenic tumor elicits flatness.

Neither kidney is palpable. No varicosities exist in the lower extremities.

The patient was under our care from this time until a splenectomy was done upon him in December.

Our treatment consisted of a thirty days' course of iron plus Fowler's solution, as tonics and alteratives: salol and occasional exhibitions of calomel.

In August the patient became worse, having a remittent fever, of two weeks duration, ranging from 100° to 101° F. He had, at this time, a number of hemorrhages into the stomach with hematemesis, the blood being dark red in color, and slightly digested. Blood was also present in his urine. The hemoglobin fell to about 65%.

The hemorrhages were treated by complete rest in bed, fluid diet, ice to the abdomen, and calcium lactate, grs. x. t.i.d.

Following this time in August, the patient improved somewhat in weight and strength, his hemoglobins came up to about 80% and he had no visible hemorrhages. No examination was made for occult intestinal blood.

Urine: S. G. 1015, color—pale straw, no sugar, no albumen, indican occasionally, blood was present after during the month of August, about 1500 c.c. daily.

Blood: Hemoglobin 65-80%, leucocytes 8000, erythrocytes 4,000,000.

Differential count: Polys. 65, large monos. 5, small monos. 25, eosinophiles 3, transitional 2.

The reds were regular in size, and were evenly stained. No nucleated reds were detected.

At the time of the operation the liver dullness extended a finger's breadth below the ribs. The edge of the spleen was palpable two-thirds of the distance to the umbilicus.

Operation. Dec. 4, 1912. Incision 8 inches long was made through left rectus muscle. There was free fluid in the abdomen. Owing to severe perisplenitis, there was a band of extremely vascular adhesions an inch or more in width, extending from the one side of the splenic vessels around the border to the other side. The omentum was adherent to the anterior surface. Because of the density of the adhesions it was impossible to first clamp off the splenic vessels as is ordinarily done. The adhesions were stripped off, the bleeding being controlled by gauze, until the spleen was entirely free; it being then removed without difficulty. On removal of gauze there was slight bleeding, which was controlled by ligature, excepting a small area on the posterior surface of the diaphragm, where extensive oozing necessitated packing.

The wound was closed, and the patient returned to his room in considerable shock. He was suitably stimulated, and rallied well. There had been no traction on, nor injury to, the stomach, but seven hours after operation he vomited brown fluid, an hour later he vomited about three ounces of dark red blood, and shortly after, a large amount of blood clots. Twelve hours after operation, his temperature was 102° F., pulse 128, and respiration 34. He vomited dark blood each day for four days, and passed a large dark fluid bowel movement on the fourth day.

On the fourth day he developed a cough—a mild bronchitis—which persisted during his stay in the hospital, causing him very much discomfort.

The packing was removed on the third day, and the patient was able to leave the hospital on the 25th day. His temperature persisted at 100° to 101° F., up to the time of his leaving the hospital. Excepting this, he was in good physical condition, and had recovered a fair degree of strength.

Pathological report by Dr. O. J. West:—

Macroscopical Examination. Spleen 22 x 17 cm., weight 800 gms., normal shape preserved, color normal, surface smooth. Capsule is markedly thickened and shows evidence of extensive adhesion on anterior surface; cut surface, dark red except where ramifications from capsule penetrate to form trabeculae; these trabeculae are much thickened.

Microscopical Examination. Malpighian bodies show moderate fibrous increase; endothelial lining of vessels is hypertrophic and occasionally vagrant endothelial cells are seen. No malignancy, no infection necrosis or degeneration.

The findings are those of a chronic toxic spleen, with nothing to designate the source or nature of the toxic substance.

He suffers no discomforts and apparently enjoys excellent health; yet an examination of the blood made Feb. 28, 1914, shows the following condition. Moderate poikilocytosis and anisocytosis.

Number of leucocytes per cm. (estimated) 8000

Differential count of leucocytes:—

Lymphocytes	43%
Large mononuclear and transitional	15%
Neutrophiles	34%
Eosinophiles	8%

This case presents some interesting features. The abnormalities of the blood 14 months after the removal of the spleen suggests that the anaemia is not due to hemolytic action of the spleen alone. In view of the findings of Gibson the history of the trauma to, and amputation of, the arm with resulting infection, followed within a year by the primary symptoms of this disease which were progressive up to the time of the removal of the spleen suggests that such infections may be the origin of the toxin.

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AN OPERATION FOR CORRECTING THE AQUILINE NASAL DEFORMITY. THE USE OF A NEW INSTRUMENT. REPORT OF A CASE.*

By Oliver A. Lothrop, M.D., Boston,

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The nasal deformity often called the aquiline or Roman nose, is characterized by an excessive growth forward from the face of the nasal bones and septal cartilage, causing a hump or arching forward of the nose bridge. In extreme cases a very disfiguring deformity results, most noticeable in profile. In order to transform such a deformity into a normal nasal profile, this new operation has been devised.

General anesthesia is required for this operation and adrenalin chloride, applied to the mucous membrane of the septum and nasal bones, is very helpful in reducing the hemorrhage. Strict asepsis in every particular throughout the operation is imperative for a good result.

Technic. An incision is made on one side of the columella down on to the free edge of the septal cartilage. The muco-perichondrium is now elevated for a short distance on either side. If the septal cartilage has grown too long in this direction, so that the nose is too long and hangs over the upper lip, a suitable amount of the denuded cartilage is now removed. The muco-perichondrium is then elevated on both sides of the septum close under the nose bridge up to and under the nasal bones. The free border of the cartilage forming the bridge is now shaved down to the line desired for the reconstructed bridge. A piece of the perpendicular plate of the ethmoid close under the nasal bones is now removed, relieving all support at that point.

The next step in the operation consists in making an incision within the nostril along the free border of the nasal bone and ascending process of the superior maxilla. This incision cuts the mucous membrane and underlying tissues adherent to the free border of the bones and brings the operator beneath the periosteum covering the external surface of the nasal bone and ascending process. The periosteum elevator now raises all the periosteum over the nasal bone and ascending process of that side. The above technic is now repeated on the other side.

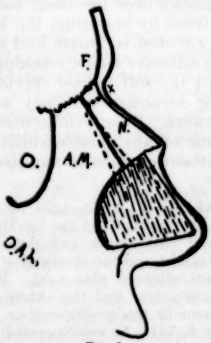


Fig. 2.

This figure shows the septal cartilage (shaded) with its re-shaped borders and the skin and soft tissues collapsing upon them. *N.* Nasal bone. *A.M.* Ascending process of superior maxilla. The broken lines enclose the triangular section on either side of the nose which must be removed to meet the newly-shaped border of the septal cartilage before depressing the arch formed by the nasal bones. *X.* At this point the nasal bones are fractured with a narrow chisel. *F.* Frontal bone. *O.* Orbit.

A triangular or v-shaped piece of bone is next removed subperiosteally from either side of the nose. This section includes a little of the nasal bone and some of the ascending process and has its acute angle near the fronto-nasal suture. In oder to remove this section cleanly, symmetrically and quickly, a new bone punch was devised for this operation. It is a heavy forceps just small enough to enter the vestibule, having a male blade and a female blade. The female blade has a triangular aperture, one-quarter of an inch at the base and seven-eighths of an inch on each of the other sides. The male blade fits into this area so that with one closure of the forceps the desired section can be removed.

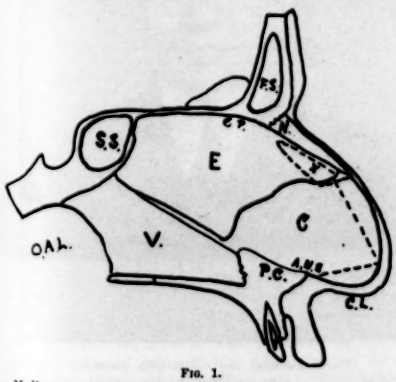


Fig. 1.

Median section of nose showing parts of the septum. *E.* Perpendicular plate of ethmoid. *V.* Vomer. *S.S.* Sphenoidal sinus. *C.P.* Region of cribriform plate. *F.S.* Frontal sinus. *N.* Nasal bone. *P.C.* Premaxillary crest. *A.N.S.* Anterior nasal spine. *C.L.* Columella. *C.* Septal cartilage, the broken line showing where it is cut to form the new borders. *X.* Section of perpendicular plate of ethmoid just beneath the nasal bones which must be removed.



Fig. 3.

A new bone punch designed to remove a V-shaped section of bone.

* Read at a meeting of the New England Laryngological Society, March 24, 1914.

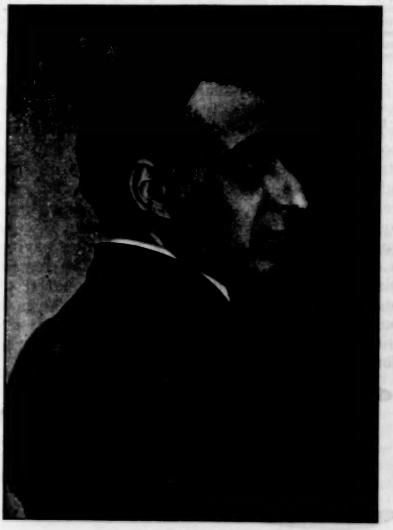
After the lateral V-shaped sections have been removed the nasal bones are fractured near the fronto-nasal suture with a narrow straight chisel. Protecting the soft tisues over the nasal bones, the latter can now be easily depressed with a blow from the mallet flush with the newly-shaped, free border of the septal cartilage.

If the nose is of the proper length the operation is finished. No packing or splinting is required. Light gauze pressure may be used over the nose for a few hours if desired to prevent a hematoma.

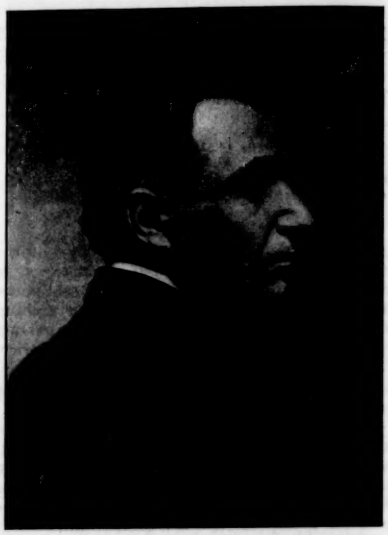
Should the nose be abnormally long, cartilage is removed from the free border at the columella as previously mentioned. Since all attachments of the soft tissues over the nasal skeleton have been cut or freed by elevating, the nose can be shortened to any desired length and held in that position with adhesive strips reaching on to the forehead until the soft tissues (periosteum) readhere to the reconstructed bony and cartilaginous framework. This technic makes possible the shortening of any nose exclusive of other deformity without excision of any tissue causing external scar.

CASE REPORT. G. J., male, aged 30 years, medical student, was referred to me by Dr. Augustus Riley for nasal obstruction and deformity. The septum was straight and the obstruction complained of was due to collapsed alae nasi. Examination was otherwise negative and the external nasal deformity is shown in the accompanying illustration.

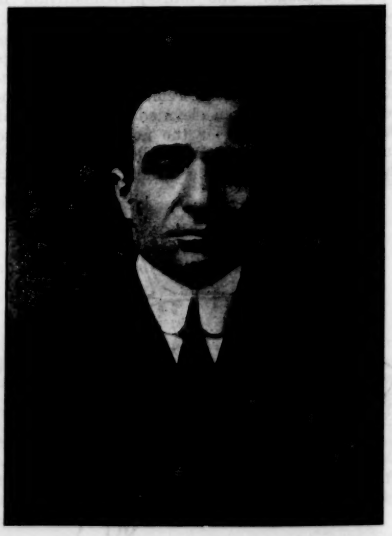
On January 9, 1914, he was operated upon. The technic of operation was identical with that above described. The operation consumed forty minutes and the patient made a good ether recovery. He never had any pain but there was considerable swelling and ecchymosis. His temperature recorded on a four-hourly chart, never went above the 98.6 line. On the fourth day after operation he left the hospital, at which time the swelling was



Photograph taken before operation showing the aquiline deformity and drooping tip of the nose.



Photograph taken two months after operation showing the results of correction.



Front view taken two months after operation.

rapidly subsiding, but it was not wholly gone for over two weeks. The adhesive plaster was removed on the third day and there was no tendency to elongation of the nose. However, to insure against a return to the former condition, the plaster strips were left in place for over two weeks. At present the nose is three-eighths of an inch shorter than before operation, the bridge is straight, and the nose is perfectly firm. The nose is still a little broader than before operation, which is probably due to periosteal thickening. Although branches of the nasal nerve must have been cut, patient observed no change in sensation at the tip.

One most gratifying, although perhaps unexpected, result of the operation was the marked improvement in breathing, noticed by the patient the first day after operation, notwithstanding the swollen condition of the nose. The shortening had relieved the collapsed condition of the alae nasi and had opened up the vestibules so that the patient had good breathing space.

ANAPHYLACTIC REACTIONS OCCURRING IN HORSE ASTHMA AFTER THE ADMINISTRATION OF DIPHTHERIA ANTITOXIN.*

BY J. L. GOODALE, M.D., BOSTON.

THE following paper is intended as a preliminary communication regarding the local phenomena occasioned by horse serum in individuals suffering from so-called horse asthma.

It has long been known that animals may be sensitized by an injection of foreign serum and examination of the literature shows a number of instances in man where a second injection of horse serum has been followed by alarming and even fatal results. It has also been observed that individuals who are subject to horse asthma may show anaphylactic shock, when given antitoxin from horses even though they have not previously been given an injection of horse serum. The suggestion was made by Rosenau and Anderson that these individuals may have been previously sensitized by the inhalation of particles of flying hairs from horses, carrying minute quantities of protein, causing local sensitization.

From these reports, it is sufficiently evident that the injection of horse serum in sensitized individuals may be extremely hazardous. We have, however, no observations, showing whether asthmatics in general are more subject to this danger than other individuals. Furthermore no studies have been made, so far as I know, to ascertain whether individuals suffering from horse asthma are actually peculiarly susceptible to horse serum.

* Read before the Boston Society for Medical Improvement, March 23, 1914.

In order to determine whether horse serum was capable of producing local disturbances at the point of contact, patients with a history of vasomotor disturbances were examined in one or both of the following ways.

1. The lobe of one ear was moistened with a drop of diphtheria antitoxin prepared by the Massachusetts State Board of Health, and a superficial cut was made with a needle, just sufficient to cause blood to appear, but not to flow.

2. A drop of the same antitoxin was placed in one nostril upon the anterior end of the lower turbinate.

Eighteen cases were examined. These may be grouped as follows:

1. Cases in which horses had been known to excite nasal vasomotor symptoms or an asthmatic attack.

2. Cases showing no reaction to horses, but in whom the asthma was apparently associated with bronchitis alone, or occurred only during the summer in connection with hayfever.

Eight cases with a history of sensitiveness to horses were examined with the following results:

CASE 1. Miss W., 28. For eight years asthma more or less constant throughout year, increased markedly by the neighborhood of horses. Has been under observation for six years. A large cystic right middle turbinate was removed in 1909, without influence on asthma. Tonsils were removed for septic detritus four years ago. During past two years, asthma had been much less troublesome, and is able to drive behind horses, although the air of a stable excites an attack.

A drop of diphtheria antitoxin was placed in each nostril. Within five minutes the mucous membrane of both lower turbinates and of the septum became pale, edematous and covered with serous fluid. The clinical picture was that of typical hay fever, and the symptoms passed off in the course of two hours. A week later a scratch was made in the skin of the lobe of one ear, and the same antitoxin applied. In three minutes the patient stated that the ear itched, and examination showed a white, slightly raised area of the skin immediately surrounding the scratch, while the skin beyond this white area showed reddening and general swelling, the lobe of the ear as a whole being about twice the thickness of the other. Five minutes later the white wheal had disappeared, and the surface of the skin was diffusely reddened. In the course of the next hour the edema of the lobe began to diminish and two hours later had disappeared.

CASE 2. Mrs. V. Seen first in 1906 for asthma of many years' duration. Had had much treatment of nose without effect. In intervals of the attacks, chest examination was negative. Has had one or two small dogs continually about her. For several years following the first examination, it was observed that on being away from the dogs, she was free from asthma, and an attempt was made to have her dispose of the animals, but without success. In November, five years ago, she was given pollantin by her family physician for an attack of sneezing and moderate asthma. This was immediately followed by exceedingly severe dyspnea, nasal ob-

struction, and profuse watery flow from the nose, being the worst attack that she had ever experienced. The symptoms subsided in the course of twelve hours. Two years ago both dogs were disposed of on account of old age, and the patient has since then had no dogs in the house. During this period she has been entirely free from asthma, although a sense of constriction in the chest is experienced when in the neighborhood of horses. When I explained the test which I wished to make, the patient was unwilling to have the antitoxin applied to the nose, as her recollection of the asthma following pollantin was so disagreeable, but consented to have the test made on the ear. Within two minutes after the application of antitoxin to the scratch on the lobe of the ear, a clearly defined, elevated, white area appeared, bordering the scratch, surrounded by a diffuse reddening, the whole lobe becoming symmetrically swollen, this resembling perfectly the appearance on the skin which would be produced by a nettle. Five minutes later the white area became changed to red as in Case 1, and the local manifestations cleared up slowly in two hours.

CASE 3. Miss J., 24. Seen in 1909 for recurrent colds and asthmatic attacks since three years of age, always excited by horses, although also occurring at all times in the year, often without assignable cause. Bilateral ethmoiditis existed, characterized by enlargement of the middle turbinates, and polypoid degeneration of the mucous membrane. In 1910 the ethmoid cells were curetted, and the patient experienced complete relief for a period of ten months, when slight shortness of breath developed. One year later, in November, asthma appeared following a cold, and a return of polpoid tissue was observed in the right ethmoid region. This was curetted with relief from the asthma. In March of this year, the patient was tested by the methods above described, with positive result, one drop of the antitoxin in the right nostril causing a typical vasomotor swelling and pallor of the mucous membrane, completely obstructing respiration on that side, and attended by profuse watery discharge, the other side remaining unaffected. The right eye became suffused with free lachrymation. The skin test of the ear developed in four minutes as a clearly defined anemic area of one-fourth inch in width bordering the incision, and contrasting sharply with the hyperemic neighborhood. The whiteness of this area was especially well-defined against the generally reddened lobe, fading in four minutes, leaving a generally reddened edematous lobe, which returned to normal in three hours.

CASE 4. G. T., male, 24. Seen in February of this year for acute ethmoiditis, which cleared up after ten days. There was an old right chronic ethmoiditis with polyp formation. Polypi had been removed in the past on several occasions. The patient stated that during the summer the neighborhood of horses would occasion sneezing, and what he described as asthmatic feelings. This condition was apparently not sufficient to cause much discomfort. The serum test in the nose gave a delayed reaction, occurring in about half an hour, and lasting for two hours later. The serum test on the skin gave negative results.

CASE 5. Miss G., 24. Seen last summer for nasal obstruction and vasomotor rhinitis, aggravated in the neighborhood of horses. During the following winter she was seen on three occasions for nasopharyngeal catarrh, and stated that she was at this season able to go near horses without symptoms. A serum test of the nose gave no reaction.

CASE 6. Miss C. Seen May, 1913, for perennial vasomotor rhinitis, increased by the neighborhood of horses in summer. No asthma. During the winter is able to come near horses without symptoms. The serum test in the nose gave negative results. The skin test was not applied.

CASE 7. J., male, 23, brother of Case 3. In general well. Sneezed since boyhood whenever is in the neighborhood of horses. No asthmatic symptoms. Submucous resection has been done by another physician one year ago. Except for small septal perforation, nose essentially negative. Introduction of antitoxin into nostril not followed by reaction Skin test on ear negative.

CASE 8. E., male, 60. Hay fever many years. Horses excite sneezing and watery nasal discharge, but no asthmatic symptoms. Chronic non-suppurative ethmoiditis and polypi. The serum test of the nose was negative. On the skin a delayed reaction occurred, beginning in forty minutes, and lasting two hours.

Five cases of bronchial asthma which gave no history of irritation from horses were examined by the nasal test with negative results. Five cases of uncomplicated hay fever received the serum in the nose without exciting reaction.

SUMMARY OF CASES.

In three cases of horse asthma the application of horse serum to the nasal mucous membrane, (in one case pollantin) or to a cut of the skin gave rise to an immediate reproduction in miniature of the phenomena of anaphylactic shock, namely spasm of the arterioles, with oedema and surrounding congestion.

One case of horse fever gave a delayed but otherwise typical skin reaction, but no disturbance in the nose. One case of horse fever gave a delayed reaction to the nasal test, but was negative for the skin test. Four of the horse fever cases without asthma were negative for both tests. Five cases of bronchial asthma and five cases of hay fever without sensitiveness to horses gave negative results.

The number of cases thus far tested is too small to justify definite conclusions in regard to the value of these tests in detecting the existence of a state of sensitization to horse serum, but if further studies should confirm them, they should prove to be of assistance to the physician who is in doubt whether in a given case it is safe to administer antitoxin.

So far as they go, they would indicate that in horse asthma, an anaphylactic reaction may occur after the administration of horse serum; in horse fever with nasal symptoms alone, this danger is less or not at all to be feared, and in other types of asthma and of vasomotor rhinitis it is not present.

Clinical Department.

BILATERAL SARCOMA OF UNDESCENDED TESTES.*

By Oliver C. Smith, M.D., Hartford, Conn.,

Surgeon to the Hartford Hospital.

When some weeks ago the author looked through the literature on malignant diseases occurring in the undescended testicle he was surprised at the paucity of the same. Shortly after a splendid article with a thorough review of the literature on the subject appeared in the December number, Vol. 17, of *Surgery, Gynecology and Obstetrics*, by Dr. Kenneth Bulkley of New York City. Fifty-seven cases of malignant degeneration of the undescended abdominal testicle were found on record, to which he added two, making 59 cases, after an exhaustive search of foreign and domestic literature. Sarcoma of one type or another occurred in 40 of these 59 cases. Of this number the side was reported in 56 instances; 30 were upon the right, 24 were upon the left, and two were bilateral.

Since this article appeared the author has made a further search of the literature, believing that other *bilateral* cases must have been reported, as in Dr. Bulkley's collection cases of intra-abdominal testes only are cited. In a careful search, however, including a perusal of the catalogue of the Surgeon-General's library, no other cases of bilateral malignancy of testicles were found. The rarity of the condition would seem to make it proper to report the following case of bilateral sarcoma of undescended testicles.

H. M., aged 38, native of United States, farmer, white, married, no children; referred by Dr. R. E. Harrington, Stonington, Conn.

Family History. Father died of heart disease; mother living, has general dropsy; one sister living and well. No tuberculosis or malignant disease in family.

Personal History. Patient has never been seriously ill and enjoyed good health until onset of present trouble. As a child both testes were absent from the scrotum; occasionally the left one could be felt in the canal. At thirty years of age he suffered from parotitis, complicated by painful swellings in the inguinal canals. These swellings entirely subsided, and not until two months prior to our observation of him, did he notice an enlargement in each inguinal canal, the right being the larger. Their growth was rapid, the one upon the right side occasioning some pain.

Condition at Time of Examination. July 8, 1913. A tall, sinewy, bronzed, thin man of quiet demeanor, rather slow of comprehension, with masculine traits not well marked. Heart sounds were normal; lungs clear and resonant; reflexes active; no palpably enlarged glands. Blood-pressure, 120 mm. hg; hemoglobin, 80%. The prostate and seminal vesicles were normal to palpation, and the urine was negative. Both iliac fossae and inguinal canals were occupied by large, fluctuant tumors, the right extending from the upper margin of the scrotum to above the umbilical line. This mass was tense, fluctuating, and bulging far anteriorly to the abdominal wall. The tumor upon the left side occupied the inguinal canal and was less tense, and through the fluid medium could be palpated a solid, ovoid mass at the upper posterior area. Both testes were absent from the scrotum.

Diagnosis. Bilateral hydrocele with neoplastic degeneration of both testes high in the inguinal canals.



Fig. 1.
Photograph of patient taken previous to operation.

Figure 1 is a photograph of patient taken previous to operation. Operation July 10, 1913, at Hartford Hospital, under ether anesthesia, drop method.

An oblique incision was made on the right side, parallel to Poupart's ligament over the center of the tumor; the external oblique fascia was split as in operation for hernia. An enormous fusiform cyst of the tunica-vaginalis was found containing 750 c.c. of clear straw-colored fluid. At the upper portion a hard, irregular mass, the neoplastic testicle was found. The tissues of the cord, including the vessels and lymphatics, were dissected beyond the internal ring; the vas deferens was followed as far down as possible toward the pelvis and removed. A similar operation was performed upon the left side, where the quantity of fluid was found to be half that of the right. The testicular tumor was found lower in the canal than upon the right side, of similar appearance and but slightly varying dimensions. The wounds were closed without drainage. The operation was followed by but little reaction, and primary union resulted.

Figures 2 and 3 are photographs of the testicles after removal, actual size.

* Read before the Surgical Section of the Hartford Medical Society, December 22, 1913.



FIG. 2.
Photograph of left testicle after removal, actual size.



FIG. 3.
Photograph of right testicle after removal, actual size.

Figure 4 is a photograph of the patient taken seven months later, showing extensive recurrence on the right side.

The pathological report by Dr. John Carter Rowley, pathologist at the Hartford Hospital, was "large, round-celled sarcoma of each organ."

Figures 5 and 6 are photomicrographs by Dr. Arthur J. Wolff and show very clearly the histological structure.

The following is Dr. Wolff's description of the sections: "The sections were stained with a modified Van Gieson stain. The histological structure of both pieces of tissue are entirely similar, so that a description of the one applies to both. They consist of large, round cells imbedded in a scanty amount of intercellular substance; the stroma intervenes between all the cells and is closely connected with them. The sections show a rich but a very irregular distribution of small blood vessels possessing but a single layer of endothelial cells separating these from the round cells forming the tumor.



FIG. 4.
Photograph of patient taken seven months after operation, showing extensive recurrence on right side.

As can be seen in the photomicrograph of the right testicular growth, the large, round cells are in very marked mitotic action. In some parts of the tumor, especially near the peripheral zone, some disposition to alveolar structure is to be seen, but such arrangement is entirely absent in the deeper portions of the mass. The histological diagnosis is "large round cell sarcoma."

From the statistics collected by Dr. Bulkley it appears that malignant disease of the testicle is fifteen times as frequent in the undescended as in the scrotal testicle. It is obviously important, therefore, to place the undescended testicle in the scrotum during childhood, either by manipulation and massage, or by operation. Where this cannot be accomplished, removal of the undescended testis should be considered.

The newly built Institute of the History of Medicine will be opened in the University of Vienna at the beginning of the summer semester. Already the institute has a library of three thousand volumes, besides a number of valuable manuscripts relating to the Vienna Medical School. There is also a collection of old surgical instruments and apparatus.—*British Medical Journal.*

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

The thirty-first meeting of the New England Pediatric Society was held on March 20, 1914, at 8.15 p. m., at the Boston Medical Library.

FRITZ B. TALBOT, M.D., Secretary.

DISCUSSION.

DR. WALTER B. SWIFT: I saw these cases in the Boston City Hospital, nerve out-patient department, and it may be of interest to know that they were put on thyroid extract there without any results whatever. This was done with Dr. Fairbanks' prophecy that no change would come. In looking over the German literature I find there are some cases, two in brothers, that have been reported: Porter, 1907, three brothers, and Schemensky, 1912, two brothers, twins.

BILATERAL SARCOMA OF UNDESCENDED TESTES—SMITH.

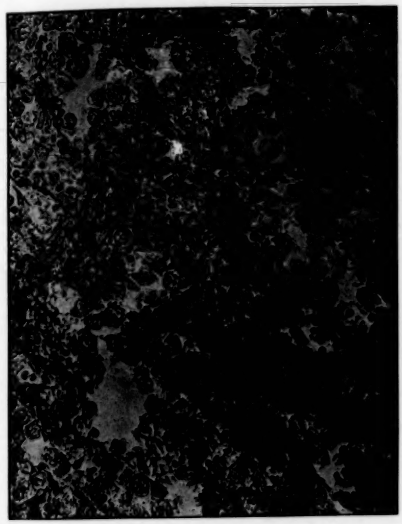


FIG. 5.

Testicle, large round cell sarcoma (right). X 545 Winkel 7 mm. obj. No. 3 Winkel proj. eye piece.



FIG. 6.

Testicle, large round cell sarcoma (left). X 240 Winkel 7 mm. obj. and No. 1 proj. eye piece. Modified Van Giesen stain.

counts for the characteristic deformity seen in this condition, of which these two children are most typical examples.

The particular interest of these cases shown this evening lies in the fact that we have here two very characteristic cases of the condition in two children of a family all of the other members of which are normal.

It has been reported that a chondrodystrophic mother has given birth to a chondrodystrophic child. On the other hand, a chondrodystrophic mother has given birth to normal children.

It would seem more probable that we have to do in these cases with an intrinsic germinal defect rather than with an acquired embryonic condition or disease. Certainly the condition has nothing to do with rhachitis, for the pathological process is entirely different in the latter disease, and the term "fetal rickets" should not longer be employed as synonymous for its condition.

am asking these questions for information, not criticism. I have seen a number of these cases, and all have been in girls. In one case I feared we might have some tubercular trouble and had Dr. Ernst go over the case carefully. He found the colon bacillus and there was no tubercular infection whatever. I have seen cases extend over two years' time where the colon bacillus was present.

DR. WYMAN, in closing: As to the transparietal theory, I cannot answer that question. I think that in a number of cases the condition clears up entirely. In some of the more acute cases the condition clears up in a month or six weeks. The chronic cases do not clear up as easily, and one often finds them extending over a year or sometimes years in spite of careful treatment.

With the alkaline treatment I give enough to get a strong alkaline reaction in the urine. (If I do not get it with grains ten, three times daily, of the ci-

* See BOSTON MED. AND SURG. JOUR., Vol. clxx, No. 14, April 2, 1914, p. 540.







FIG. 3.
Photograph of right testicle after removal, actual size.

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Dr. A. W. Fairbanks showed two cases of

CHONDRODYSTROPHIC DWARFS (BROTHERS).

Dr. Fairbanks, in commenting on the two chondrodystrophic dwarfs shown, said that such cases were entirely unrelated to hypothyroidism. He had seen a number of cases in children and three in adults and they were all free from myxoedematous phenomena and were normal mentally. One of the cases seen originally in childhood has been under observation nearly twenty years. These two brothers are mentally normal for their age and are doing the usual school work for that age. All of the other children and both parents are of normal stature. The mother and sister were shown for comparison.

The mother's pregnancy with both of these boys was normal in every respect.

Photographs of other cases in children were shown, as well as radiographs of cranium, extremities and thorax of each of the brothers.

The condition is due to defective growth of cartilage, the normal development of which should take place, or at least commence, between the third and the sixth month of fetal life, and to premature ossification of this deficiently developed cartilage, with consequent defect in the subsequent development of the bones. Only those bones are involved that develop from cartilage, and only those the cartilage of which should be in active growth in those particular months of fetal life, namely, the endochondrium of the long bones of the extremities, and the cartilage from which are formed the bones of the cranial base, the ribs and the pelvis. The limitation of the disturbance to this particular period of fetal life, and to the structures of the prospective bony framework whose development should normally commence in this period, but does not, accounts for the characteristic deformity seen in this condition, of which these two children are most typical examples.

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Dr. Edwin T. Wyman read a paper on,

PYELITIS IN INFANCY AND CHILDHOOD.*

Abstract: A review of the symptomatology, diagnosis, prognosis and the treatment of pyelitis.

He states that these cases of pyelitis are not infrequently treated for other diseases and reports two typical cases where the diagnosis was overlooked.

He states that in a series of cases of pyelitis in infants and children at the Children's Hospital, Boston, 54% were in infants under two years of age and 40% over two years. Of these cases 63% of the infants were females and 90% of the children were females. Vomiting was noted in 35% of the cases, painful micturition in 36%, and frequency of micturition in 40%. Chills were noted in 15%, and abdominal pain in 16% of the cases.

The average leucocyte count in the uncomplicated cases was 19,000; the lowest leucocyte count was 8,000, in a chronic case, and the highest leucocyte count was 62,000, in a very acute case. The temperature varied from normal in the chronic cases to 105.5° F. in the acute cases. There was anorexia, anemia, fretfulness and loss of weight in all cases.

DISCUSSION.

Dr. Myron L. King: I would like to ask Dr. Wyman what proportion of the cases clear up entirely? Do they entirely clear up, or do they run for years and years?

Dr. Edwin P. Stickney: One thing that surprised me was the size of the dose of these different drugs, and *especially* the citrate of potash. Do such large doses upset the stomach? In these cases I never use such large doses, and I wonder if the other gentlemen are accustomed to give them? I am asking these questions for information, not criticism. I have seen a number of these cases, and all have been in girls. In one case I feared we might have some tubercular trouble and had Dr. Ernst go over the case carefully. He found the colon bacillus and there was no tubercular infection whatever. I have seen cases extend over two years' time where the colon bacillus was present.

Dr. Wyman, in closing: As to the transparietal theory, I cannot answer that question. I think that in a number of cases the condition clears up entirely. In some of the more acute cases the condition clears up in a month or six weeks. The chronic cases do not clear up as easily, and one often finds them extending over a year or sometimes years in spite of careful treatment.

With the alkaline treatment I give enough to get a strong alkaline reaction in the urine. (If I do not get it with grains ten, three times daily, of the ci-

* See Boston Med. and Surg. Jour., Vol. clxx, No. 14, April 2, 1914, p. 540.

trate of potassium, the dose is increased to twenty grains three times daily. With the hexamethylenamin, I push the dose until I get the test for formaldehyde in the urine, keeping the urine acid all the time, and then if there is any microscopic blood in the urine, you know that there is irritation of the kidney, when the treatment is discontinued. With regard to citrate of potassium disturbing the digestion, in my experience I have not found it to do so.

DR. Z. B. ADAMS read a paper on,

THE ANOMALIES OF THE LUMBO-SACRAL REGIONS AND THEIR RELATIONS TO THE CAUSE OF SCOLIOSIS.*

ABSTRACT: First is mentioned the fact that congenital lesions of the base of the spine are frequent occurrences in scoliotics, more frequent than has been previously supposed; then follows a description of the mechanics of the base of the normal spine; the joint between the fifth lumbar vertebra and the top of the sacrum and between the sacral segments; the various anomalies at this region are rehearsed, special attention being drawn to those which have a bearing on the causes of scoliosis; next is a chapter on the mechanics of the scoliotic spine, but especially of the base, in scoliosis; next diagnosis is treated and the frequency of these lesions is brought out in an analysis of twenty-six cases, a brief description of the X-rays taken in making the diagnosis. In speaking of treatment the importance of these anomalies is shown, and it is brought out that it is a mistake to attempt to make the corrected spine stand upon the twisted and uneven base, from which it has toppled; therefore it is necessary to place and fix the base of the spine in a position of equilibrium, so that the corrected spine may stand upon it. This requires careful surgical treatment after corrective methods have been practised.

DISCUSSION.

DR. TALBOT: We have had the privilege tonight of hearing some entirely new principles in the mechanics of scoliosis, and I am told that these principles which Dr. Adams has worked out are going to revolutionize the treatment of that condition.

DR. RICHARD M. SMITH read a paper on,

FAMILY INCIDENCE OF ENDOCARDITIS IN CHILDREN.

ABSTRACT: Out of 208 cases of endocarditis, chorea or rheumatic fever 30, or 14.48%, occurred in children who had father or mother or brother or sister with a similar infection.

Some families had all the children showing infection. In some cases the date of the onset of symptoms of the different members of the same family suggested strongly infection from one individual to another.

DISCUSSION.

DR. HENRY I. BOWDITCH: I would like to ask Dr. Smith whether there was any similarity between the infections, what proportion of the cases in a given family had chorea, and what proportion had rheumatism, and whether they all followed a certain course. I think this study is extremely interesting, and opens our eyes still further to the possibilities of infections. We may have to come to the point of isolating such families because of the transmission of dangerous organisms.

DR. L. C. MILLER: Dr. Smith stated in his remarks that the social worker looked up these cases. I would like to ask him if she reported on the surroundings, hygienic conditions, etc., and how much bearing they may have had on the course of these conditions in different members of the same family.

DR. ARTHUR W. FAIRBANKS: In those cases of endocarditis that result from tonsillitis it seems to me that there can be no question of familial incidence in the strict sense of the term, that is, a familial predisposition to the disease. There can be no question about the infectious and contagious nature of acute tonsillitis. We have all of us seen many examples of this in families and in institutions. Now if such infections result in endocarditis, that endocarditis cannot be considered as indicative of familial incidence, but is better termed a familial accident. It is the result of infection transmitted from one individual to another by contact, as in the case of any other infection.

We of course see cases of rheumatism with endocarditis, and chorea with cardiac involvement occurring in more than one member of a family without any obvious infectious disease like tonsillitis having preceded their onset. Whether the entrance of the infection in cases is by some other route than by the tonsils we cannot say, but the resultant endocarditis is the accidental result of infection rather than the result of familial predisposition.

DR. SMITH, in closing: I would say in reply to Dr. Bowditch's question as to whether one family was more prone to have rheumatism, another chorea, and so on, that we did not find that this was so. There may be three children in the same family, and one of them may have chorea and rheumatism, while the other two have other conditions,—they do not necessarily have the same condition.

Answering Dr. Miller as to the question of surroundings, we tried when we started out to go into the question of surroundings, physical conditions, etc., but we were unable to get sufficient data from which to draw accurate conclusions. Cases of endocarditis following tonsillitis do not fall into the group under discussion, and there are a great many such cases.

Another illustration of this possible infection of rheumatic fever from one member of the family to another may be worth mentioning. A case came to my attention today where two boys had been in the habit of sleeping in the same bed. One fell sick and the brother was taken away to sleep in another room. The first boy proved to have rheumatic fever and for four or five days he slept alone. When the joints quieted down, the other boy resumed sleeping with him, and the next day he came down with rheumate fever. This may be a pure coincidence, but it seemed to me a rather striking occurrence.

PLAGUE IN COLOMBIA.—Report from Bogota on May 7 states that bubonic plague has broken out along the Atlantic coast of Colombia. Suppressive measures have been immediately instituted. The number of cases is not given.

* See BOSTON MED. AND SURG. JOUR., Vol. clxx, No. 21, May 21, 1914, p. 786.

Book Reviews.

Diagnosis in the Office and at the Bedside. The Use of Symptoms and Physical Signs in the Diagnosis of Diseases. By Hobart Amory Hare, M.D. New (7th) edition, thoroughly revised and rewritten. Octavo, 547 pages. Philadelphia and New York: Lea and Febiger. 1914.

Dr. Hare has revised his book, which is now in its seventh edition. He has omitted laboratory methods from the text. A very careful index is an excellent feature.

Diseases and Deformities of the Foot. By John Joseph Nutt, B.L., M.D., surgeon-in-chief to the New York State Hospital for the Care of Crippled and Deformed Children. New York: E. B. Treat and Company, 241-3 West 23rd Street. 1913.

This monograph, designed to cover all the common disorders of the feet, in large measure accomplishes its purpose. If there is a slight lack of an original point of view, the thoroughness with which the foot conditions of all sorts are described makes it a very useful book. It is evidently written rather more for general practitioners than for orthopedic surgeons, and wisely it does not attempt to describe the details of complicated operative procedures. The illustrations, especially the line drawings, are profuse and graphic, those which portray the commoner types of deformity of poliomyelitis being most excellent. The book will help to call attention to a region which suffers much from medical ignorance and inefficiency.

Die Krankheiten der Nase und Mundhöhle, sowie des Rachens und des Kehlkopfes. Ein Lehrbuch für Arzte und Studierende. Von Dr. Alfred Bruck, Berlin. Zweite, wesentlich vermehrte und verbesserte Auflage. Mit 252, zum Teil farbigen Abbildungen und 2 Tafeln. Urban and Schwarzenberg. 1912. New York: Rebman and Company.

This is the second edition of an excellent textbook. With German thoroughness and system it divides and subdivides, but it is condensed and clear. It has a little to say about everything and not too much about anything. To the American reader the method of dealing with the tonsils will appear ancient, but on the other hand, he will find some subjects which he has probably never heard of before. The first edition of this book was translated into English four years ago by Dr. Ross of Edinburgh and published in this country. It is reviewed in this Journal, Vol. 163, p. 262.

Chronic Colitis. Its Causation, Diagnosis and Treatment. By George Herschell, M.D., and Adolphe Abrahams, M.D. London: Longmans, Green and Company. 1914.

The authors state that they have designed this book for the general practitioner. In their definition of chronic colitis they exclude the condition of ulceration of the intestine except in so far as it is definitely considered a complication of chronic colitis. They regard ulcerative colitis as a specific infective condition which is the province of the surgeon. Most readers will wish a work that is less elementary and more critical. On the whole, the work is rather vague and general.

A Text-Book of Physiology. For Medical Students and Physicians. By William H. Howell, Ph.D., M.D., professor of physiology, Johns Hopkins University, Baltimore. Fifth edition, thoroughly revised. Octavo of 1020 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

In the new edition of this well-known textbook the author has maintained admirably the high standard set by previous editions. While the frequent issuance of new editions of necessary text-books is to be deplored in general, it seems to be unavoidable in any field in which advance is so rapid as in the medical sciences. An unfortunate feature of the situation is that in the most rapidly developing phases of a subject, material advance may be made during the interval between preparation of the manuscript and issuance of the text-book. This is exemplified in interesting fashion in the discussion in Professor Howell's book of internal secretions. His treatment of the functions of epinephrin represents the utmost that could be said in the summer of 1913. But in the months that have elapsed since then, some very striking advances have been made in our understanding of the operation of this hormone. Thus nothing is said in the text-book about the "emergency function" of epinephrin, although in the light of the most recent researches that expression seems to elucidate its actual use in the body better than the more detailed statements previously given.

Probably the most significant advance in the present edition over previous ones, lies in the sections devoted to the absorption of the various food stuffs, and to general metabolism. The recent work of Mendel and Osborne, Folin and Denis, and the other workers in these fields, is

presented with full appreciation of the great gain in our comprehension of these difficult topics which their work has furnished. Scattered throughout the book are to be found such changes in statement as the general physiological advance of the last two years has made necessary. While one might possibly wish that the recent studies having to do with the mechanism of muscular contraction had received more attention, in view of the great complexity of this subject and the lack of finality about the experiments, the postponement of the discussion to later editions is undoubtedly justified. That the book as a whole constitutes one of the most satisfactory presentations of the subject matter of physiology in any language, cannot be doubted.

The Early Diagnosis of Tubercle. By CLYDE RIVIÈRE. New York: Oxford University Press. 1914.

Any new book by such an authority as Dr. Rivière merits close attention and scrutiny. The present volume is a small one of nearly pocket size with, however, 260 pages.

The reviewer frankly does not like the title. While the author evidently means the early diagnosis of pulmonary tuberculosis, certainly the title does not convey this idea. As is common with many books of this type, it loses much of its value as a help to general practitioners in this important branch of medicine on account of the multiplicity of detail. The description of fine technical points in diagnosis would tend to diminish the relative importance of the fundamental groundwork on which the early diagnosis of pulmonary tuberculosis rests. For the specialist in tuberculosis and diseases of the lungs there are many points of interest, although many with which American students of tuberculosis would not for a minute agree. The reviewer is strongly of the opinion that there is not anywhere near enough attention given to the history, occupation and constitutional signs and symptoms of the patient and far too much space devoted to the detailed examination of the lungs. The author is an enthusiastic advocate of percussion as a means of diagnosis, and in the reviewer's opinion somewhat exaggerates its value and does not pay enough attention to auscultation.

Under the subject of differential diagnosis, he speaks of apical pulmonary collapse and acute apical catarrh, chronic bronchitis with collapse, as simulating early pulmonary tuberculosis. The cases which he presents as examples of this condition unfortunately do not give enough data to allow of an opinion one way or the other. It would be far safer to consider the cases which he presents as ones of early pulmonary tuberculosis rather than of pulmonary collapse or apical catarrh.

There is a detailed discussion of tuberculin in diagnosis, far too detailed for the general practitioner to understand or to be even interested in. The best feature of the book is a detailed discussion of tuberculosis of thoracic glands, or hilus tuberculosis. This is most interesting and valuable and presents this subject in fuller detail than the reviewer has seen elsewhere in any other book or publication. There are many photographs, diagrams and charts.

With the exceptions mentioned above, there is very much to commend itself in this little volume, although it is one evidently intended more for specialists than for the average general practitioner.

Scrofulosis. By PROFESSOR DR. G. CORNET, Berlin. Translated from the second German edition by J. E. BULLOCK, M.D., London. New York: William Wood and Company. 1914.

After a careful study of this book, the reviewer is as much at a loss after having read it as he was before so doing as to what scrofulosis is, and as to its relation to pulmonary tuberculosis. In general, there seem to be two causes of this strange condition: (1) scrofulosis due to the tubercle bacillus; and (2) scrofulosis due to various pyogenic organisms. In reading over the various conditions due to scrofulosis, one finds that the seborrhea of the scalp in young infants, and large tonsils and adenoids in childhood, eczema in all of its forms in all ages, glands of the neck, all forms of tuberculosis, and all diseases due to pus-forming organisms, are due to scrofulosis or to the scrofulous diathesis. The reviewer regrets that he cannot see how this book can cause anything but confusion worse confounded, and utterly fails to see its place in the medical literature of this country at least. The therapeutic advice here given would seem to hark back to a period of twenty-five years ago. Creosote, in various ingenious mixtures, arsenic, cinnamic acid, sapoviridis, and others are recommended. The author even devotes half a page to the rubbing in of brown soft soap from the neck to the popliteal space as a cure for tuberculosis, glandular swellings, ulcers, etc.

Although in certain passages there is much sound advice in this book, as a whole the reviewer believes that such a volume as this will do far more harm than good.

The Junior Nurse. By CHARLOTTE A. BROWN, R.N. Illustrated. Philadelphia and New York: Lea and Febiger. 1914.

This volume is primarily a text-book for probationers. It describes the things a nurse should know and learn to do early in her training. It is a well-written book, illustrated with 41 good figures in the text, and should find a place of definite value in the library of training-schools and of the individual pupil nurse.

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TRANSMUTATION AND RACE-BUILDING AMONG BACTERIA.

IT has been recognized in the past that there may be considerable variation and transformation in the biological characteristics of different bacterial species. Progress in this direction has been carried forward to such an extent that we are now confronted with evidence that transmutation of one species of bacteria to another has been accomplished, thus questioning the permanence of bacterial species.

These transformations or transmutations of bacteria have been brought about by modification of the environmental conditions through experimentation. We find that Thiele and Embleton[1] report the experimental transformation of Bacillus mycoides into an organism resembling the bacillus anthracis. The former bacterium is a non-pathogenic organism found in garden soil, slender, non-capsulated, flagellated, motile, growing at a low temperature, and dying when incubated at body temperature. The latter organism is pathogenic, shorter and thicker, encapsulated, non-flagellated, non-motile, capable of growing at body temperature, virulent, having all the properties of the bacillus anthracis and producing lesions quite similar to those found in anthrax. In like manner these authors have converted the harmless smegma bacillus into a virulent bacillus which resembled the tubercle bacillus in all its properties, and the various relatively avirulent diphtheroid bacilli have been transformed to virulent organisms which in every way resembled the diphtheria bacillus.

Rosenow,[2] of Chicago, has recently made noteworthy and valuable contributions to this fascinating and important problem of the transmutation of bacterial species. In his recent paper in the *Journal of Infectious Diseases*, he first refers to the work of investigators in the problem of the transformations among the various strains or types of streptococci, and then gives the results of his own extensive experimentation and observation. Five different micro-organisms were employed in these experiments. They were the streptococcus viridans, the streptococcus hemolyticus, the streptococcus mucosus, the streptococcus rheumaticus and the pneumococcus.

The extent of his observations can be judged from the fact that they comprised the following: Culturing of the micro-organism under varying favorable and unfavorable conditions, with a study of the morphologic biochemical and virulent properties of the various strains of cocci employed. The organisms were cultivated in various and widely different environmental conditions, such as, for instance, cultivation in an atmosphere varying from pure oxygen to complete absence of oxygen, in media with a salt concentration varying from hypertonic to hypotonic, at temperatures slightly above and slightly below normal body temperature. Various body fluids, such as ascitic fluid, urine, sterile milk and others, were employed. Furthermore, the various micro-organisms enumerated above were grown in symbiosis with other organisms, within the cavities and circulating blood of living animals. Still further, the organisms used in this extensive series of experiments were obtained or isolated from a great many widely different sources, including tonsillitis, arthritis, erysipelas, puerperal sepsis, pneumonia and others. The bacteria so obtained were subjected to the various experimental environmental conditions mentioned above.

As a consequence of this work Rosenow found the following results: Apparently complete transmutation of each of the various members

[1] *Ztschr. f. Immunitätsforsch. u. exper. Therap.*, 1913, xix, 643.

[2] Transmutations within the Streptococcus-Pneumococcus Group, *Journal of Infectious Diseases*, 1914, xiv, 1. Also Relation of and the Lesions Produced by the Various Forms of Streptococci with Special Reference to Arthritis, *Illinois Medical Journal*, xxv, 1, 11; Rôle of the Streptococcus in Rheumatism, Muscular and Articular, *Journal of Infectious Diseases*, January, 1914.

of the streptococcus-pneumococcus group to one or the other of the rest of the group was accomplished *in vitro*. So complete was the transformation in some of the strains that it was found to be so by every test known. Thus the transmutation into another type of organism and the identity of the latter was proved by the morphologic and biochemical characteristics, the fermentative powers, presence or absence of capsule, solubility or insolubility in bile and sodium chloride solutions, the behavior toward the respective broth culture filtrates (Marmorek's test), and the specific immunity response as proved by the production of specific opsonins and agglutinins, and the more or less specific pathogenic powers as evidenced in the ability to produce characteristic lesions when inoculated into animals. For example, strains corresponding to hemolytic streptococci were converted into typical pneumococci as determined by all the tests enumerated and vice versa. In other words, the streptococcus was transformed from one strain to another and to a pneumococcus and vice versa, as proved by morphologic, cultural, agglutinating, pathogenic and other properties.

It has thus apparently been demonstrated that one species or race of bacteria can be transformed or transmuted into another. A new species of bacteria, a new race of micro-organisms has been developed by the modification of certain environmental conditions. Rosenow further noted that the various strains with which he experimented seemed to have a more or less specific affinity for certain specific structures in the body, one attacking the joints with the production of arthritis, another the lining of the heart with resulting endocarditis, another the muscles, producing myositis.

As Rosenow points out, this work was started by others before him and no doubt anticipated by still others before them, since it was fully appreciated that differentiation and specialization of function was here at its minimum, in as much as in dealing with bacteria we have to do with the very lowest forms of life.

The importance of these findings for bacteriology, epidemiology, medicine and biology, are not yet fully appreciated by many. But Rosenow ventures to say that the fact that variations in oxygen tensions and salt concentrations, that growth in symbiosis with other bacteria and that injections into body-cavities in animals, commonly produced mutational forms in streptococci, suggests strongly that similar changes might occur in various foci of infection where such conditions may prevail. "It would seem, therefore," he declares, "that focal infections are no longer to be looked upon as merely a place of entrance of bacteria but as a place where conditions are favorable for them to acquire the properties which give them a wide range of affinities for various structures."

MEDICAL LEGISLATION. REORGANIZATION OF THE STATE BOARD OF HEALTH.

THE bill for reorganization of the Massachusetts state board of health, the text of which was printed in full in last week's issue of the JOURNAL, has been first referred by the legislature to the committee on ways and means. On Tuesday, May 19, this committee held a hearing at which Governor Walsh spoke in favor of the bill. Others who spoke in its favor were Dr. Bowers, in behalf of the legislative committee of the Massachusetts Medical Society, Mr. Stoughton Bell, for the Boston Chamber of Commerce, and Drs. Edward O. Otis, James J. Minot, and Arthur K. Stone. Many amendments were offered. It is estimated that the expenses of administering the new system would be about $16,000 more than the cost of the present board.

Opponents of the bill criticise it because it does not transfer the department of vital statistics from the secretary of state to the health service, and because it makes no provision for adequate control of the milk supply. It is a debatable question whether such provisions should be made a part of the present bill; whether they could not more properly be made the subject of special legislation. It is also suggested that the health commissioner should be given even larger jurisdiction and authority. This, too, is a legitimate question for discussion in committee and before the legislature. As it stands, we believe the bill a constructive and dignified piece of legislation, and, with such modifications as may seem desirable, advocate its enactment into law.

It is to be realized that Dr. Walcott's retirement marks the end of an epoch in health administration; and that methods which were efficient with the board of his time, may no longer be adequate under the changing conditions and personnel of the future.

HEALTH EDUCATION.

It is evident that increasing publicity in regard to matters of health is to be the prevailing attitude of the future. If this is accepted it is eminently desirable that such instruction as is given in physical and mental hygiene should be from authoritative sources. Among such efforts toward public enlightenment we are glad to call attention to a series of small pamphlets which sell at the modest price of four to ten cents bearing the general title, Health Education Series. These small booklets, as they are termed in the prospectus already number 29, on such subjects as "Milk," "Colds," "Meat and Drink," "The Boy and the Cigarette," "Microbes, Good and Bad," "Emergencies,' "Industrial Hygiene" and others of like character. These are written by such authorities in their several subjects as the late Dr. Charles Harrington, Miss Ellen H. Richards, Professor C.-E. A. Winslow, Dr. Edward O. Otis and other persons of equal attainment in their special fields. Undoubtedly such pamphlets, obtainable at so small a price, will be helpful to a large number of people. Evidently the writers have been chosen with care to the end that the suggestions made shall lead directly to a more adequate knowledge of the laws of health through a plain statement of the means for their attainment. We wish to call special attention to the latest of the series by Dr. Charles M. Green on the subject "Prospective Motherhood," a subject upon which it will be generally acknowledged a large amount of ignorance exists. Dr. Green has approached his topic on the basis of a wide experience in a way which cannot fail to be of value to women looking forward to motherhood. If the precepts therein expressed were generally followed there is no doubt that much discomfort and actual illness both before and after childbirth might be avoided.

HOSPITAL PROVISION FOR WHOOPING-COUGH.

There is at present pending before the Massachusetts General Court a bill for the abolition of the parental school at West Roxbury. The school department, it is understood, already has in hand plans of making other provision for the children annually committed there. If this bill is passed, it is proposed to convert the buildings of the parental school into a hospital for whooping-cough. At present there is no hospital provision for cases of pertussis, which are never admitted to the South Department of the Boston City Hospital. During the decade from 1901 to 1911 the annual average of deaths from this disease was 76 per 10,000 inhabitants. In 1910 the rate was only 52 but in 1913 it rose to 97.

Whooping-cough, though unfortunately often lightly regarded by the public, is an important disease of childhood, serious in its course, complications, and sequelae. It has a considerable mortality, often due to neglect of proper treatment. The possibility and risks of its general dissemination from unisolated cases are great. Dr. John Lovett Morse has recently emphasized the importance of making hospital provision for this disease, and steps to this end have already been taken in New York. It is to be hoped that the above measure, or one similar to it, may soon adequately be carried out in Boston.

DEFEAT OF THE ANTI-VACCINATION BILL.

The anti-vaccination bill met with an overwhelming defeat in the House on May 14. The vote stood at 133 to 53. Largely owing to the influence of the Christian Scientists the contest was fierce and persistent. The Senate had already approved of the measure, 25 to 9, and the sponsors had great expectations of victory.

Great credit is due Dr. E. H. Bigelow who led the fight in the House. He made the principal speech, exhibited pictures and charts to show the effects of smallpox in contrast to vaccination and did much to convince the open-minded members of the advantages to be derived from the operation. The replies of the State Board of Health to the series of questions suggested by Representative Chamberlain of Springfield also had their effect. Mr. Moore of Leominster and many other public-spirited members of the House deserve the gratitude of the friends of good government for their wise action in defeating the bill.

A MEDICAL VIEW OF THE DWARFS AND JESTERS DEPICTED BY VELASQUEZ.

IN an interesting article of recent date in *Aesculape* Verdier has brought to the attention of the medical world the great attraction which the depiction of the deformed and mentally deficient toys of royalty had for the great Spanish painter. After paying homage to the greatness of Velasquez, Verdier brings out the deep knowledge of pathology possessed by the painter in his startling, life-like depiction of these unfortunates. No modern physician could have told Velasquez the points to bring out in accentuation of the abnormalities of face and figure better than he knew them himself. No artist, said Verdier, had a like power to understand the temperament or the mentality of these people. The dwarfs depicted he finds indisputable examples of pathologic states. The pictures of Philip IV, especially, Verdier says, are the most penetrating psycho-physiologic analysis that an artist has ever made.

MEDICAL NOTES.

CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.—The fourteenth annual meeting of the Canadian Association for the Prevention of Tuberculosis will take place at Halifax, N. S., on July 13 and 14, 1914. Dr. S. Adolphus Knopf of New York has been invited to deliver the oration on that occasion. The subject will be "The Modern Warfare Against Tuberculosis as a Diseases of the Masses," His Royal Highness, the Governor-General of Canada, is the Honorary President of the Association.

OFFICERS: AMERICAN DERMATOLOGICAL ASSOCIATION.—At the thirty-eighth annual meeting of the American Dermatological Association, held in Chicago, May 14-16, 1914, the following officers were elected for the ensuing year: President, Dr. S. Pollitzer of New York; vice-president, Dr. Martin F. Engman of St. Louis; secretary and treasurer, Dr. Oliver S. Ormsby of Chicago. It was decided to hold the next meeting in New York City in May, 1915.

APPOINTMENT OF DR. SMITH AT THE ROCKEFELLER INSTITUTE.—It is announced that Dr. Theobald Smith, professor of comparative pathology in the Harvard Medical School, has accepted the position of director of the new department of animal pathology at the Rockefeller Institute for Medical Research.

AN HEREDITARY CENTENARIAN.—Bridget D. Curran, who died on May 15 at Bethlehem, Pa., is said to have been born in 1807. Her mother is reputed to have lived to the age of 102, and her grandfather to that of 108.

BUBONIC PLAGUE IN HONGKONG.—Report from Hongkong states that 203 cases of bubonic plague occurred in that city during the week ended May 6.

HOSPITAL BEQUESTS.—The will of the late Catharine Paris, of Boston, contains bequests of $10,000 each to the Sacred Heart Hospital, Manchester, N. H., and St. Mary's Hospital, Quincy, Ill.; $5000 to the Home for Convalescent Women, Spring Valley, Ill.; and $3000 to the Claremont (N. H.) Hospital.

NATIONAL ACADEMY OF SCIENCES.—At a meeting of the National Academy of Sciences on April 23, in Washington, D. C., Dr. Walter B. Cannon, Higginson professor of physiology at the Harvard Medical School, was elected a member.

BUBONIC PLAGUE IN HAVANA.—Report from Havana on May 15 states that another case of bubonic plague has been discovered in that city, making a total of 17 since the outbreak of the present infection.

BENETOL IN THE TREATMENT OF HOG CHOLERA.—Report from Minnesota to the United States Department of Agriculture on May 15 states that in experiments by Prof. H. C. Carrel and Dr. E. W. Berg, benetol has been found of great value in the treatment of hog cholera.

HONOR FOR DR. REMSEN.—At a recent meeting of the Chicago section of the American Chemical Society, Dr. Ira Remsen, emeritus president of Johns Hopkins University, was decorated with the Willard Gibbs medal for his distinguished researches in chemistry.

AMERICAN ASSOCIATION OF PATHOLOGISTS.—At the Toronto meeting of the American Associa-

tion of Pathologists, April 10 and 11, papers were read by representatives from the Harvard Medical School as follows: Dr. M. M. Canavan and Dr. E. E. Southard, "Further Studies in the Bacteriology of the Cadaver"; Dr. H. T. Karsner and Mr. Cyrus H. Fiske, "The Effect of Acute Destructive Lesions of the Liver on its Efficiency in the Reduction of the Ammonia Content of the Blood"; Dr. S. B. Wolbach "Concerning the Granule Stage and Filterability of Spirochaetes"; Dr. S. B. Wolbach and Dr. Richard S. Austin, "The Cultivation of a New Filterable Spiral Organism from Human Feces"; Dr. Richard P. Strong and Dr. E. E. Tyzzer, "The Pathology of Oroya Fever and of Verruga-Peruviana"; Dr. E. E. Southard and Dr. M. M. Canavan, "On the Incidence and Nature of Renal Lesions in Subjects Dying Insane"; Dr. H. T. Karsner and Dr. F. G. Benedict, "Pathological Lesions following Prolonged Exposure to Atmospheres Rich in Oxygen"; Dr. H. T. Karsner, Mr. H. H. Amiral, and Mr. A. V. Boek, "A Study of the Influence of Splenectomy and of Certain Organs and Organ Extracts on the Hemopsonins of the Blood Serum"; Dr. J. Earle Ash, "Primary Carcinoma of the Liver" and "Primary Carcinoma of the Lung"; Dr. A. E. Taft and Dr. M. E. Morse, "On a Cerebellar Lesion and Associated Lesions of Dentate and Olivary Nuclei."

St. Mary's Hospital, Rochester.—The recently published twenty-fourth annual report of St. Mary's Hospital, Rochester, Minn., records the work of that institution for the calendar year 1913. During this period, the total number of patients treated was 7020, upon whom 10,166 operations were performed, with a total death rate of 1.5 per cent. Ten patients were not submitted to operation. From the training school 19 nurses were graduated.

Escape of Early the Leper.—Report from Seattle, Wash., on May 19 announces the escape of John R. Early, the leper from the Diamond Head quarantine station near Port Townsend. He is believed to be in hiding at Victoria, B. C.

BOSTON AND NEW ENGLAND.

Smallpox in Attleboro and Boston.—On May 19 a case of smallpox was discovered at Attleboro, Mass., and another in Boston. Neither of the patients had ever been vaccinated.

Scarlet Fever in Milton.—Report from Milton, Mass., on May 16 states that five cases of scarlet fever have recently occurred among pupils of the Milton Academy, which has been quarantined to prevent further spread of the infection.

Children's Hospital Training-School.—The annual graduating exercises of the Children's Hospital School of Nursing were held at the Harvard Medical School on Friday afternoon of last week, May 22. The principal address was made by Dr. Harold C. Ernst. Dr. Frederick C. Shattuck presided.

Faulkner Hospital Training-School.—The annual graduation exercises of the Faulkner Hospital training-school for nurses were held at Jamaica Plain on Tuesday afternoon of this week, May 26.

Deaconess Hospital Training-School.—The sixteenth annual commencement exercises of the training-school for nurses of the New England Deaconess Association were held in Brookline on Wednesday of this week, May 27. The principal address was made by Dr. Daniel Fiske Jones, of Boston, and diplomas were presented to the six members of the graduating class.

Hospital Gifts and Bequests.—A friend of the Sharon Sanatorium has recently presented it $5000, to establish there an x-ray plant for scientific investigation.

The will of the late Francis Skinner of Dedham, Mass., which was filed in probate at that town on May 17, contains a bequest of $10,000 to the Massachusetts General Hospital.

Prevention of Infant Mortality.—On Monday afternoon of last week, May 18, a joint meeting was held in Boston of the Women's Municipal League and the American Association for the Study and Prevention of Infant Mortality. Dr. J. Whitridge Williams, president of the Association, professor of obstetrics at the Johns Hopkins Medical School, made the principal address on the subject of infant mortality, before and after birth.

Fire at Boston State Hospital.—On the morning of Thursday, May 21, a fire occurred in the two-story brick laundry building adjoining the Boston State Hospital, Dorchester. None

of the patients was disturbed and the damage was limited to $1000.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending May 19, 1914: Diphtheria 42, of which 4 were non-resident; scarlatina 91, of which 8 were non-resident; typhoid fever 5; measles 125; smallpox 1; tuberculosis 65, of which 2 were non-resident.

The death-rate of the reported deaths for the week was 14.86.

NEW YORK.

MORTALITY STATISTICS.—The death-rate in the city during the month of April was considerably lower than in the preceding month. The weekly reports of the Health Department show that the mortality represented an annual death-rate of 14.99, as against 16.42 in March and 15.09 in April, 1913. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from diphtheria and croup declined from 46 in March to 40.5 in April; the weekly average from influenza, from 22.75 to 15.25; from epidemic cerebrospinal meningitis, from 4.5 to 3.75; from pulmonary tuberculosis, from 209 to 197.75; from acute bronchitis, from 19 to 15.25; from pneumonia, from 197 to 132.5; from broncho-pneumonia, from 145.5 to 116.25; from organic heart diseases from 238 to 208; from apoplexy and softening of the brain, from 28.5 to 24.75; from appendicitis and typhlitis, from 16.25 to 13.75; and from Bright's disease and acute nephritis, from 126 to 110. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 2.5 to 3.75; from measles, from 17.5 to 20.5; from scarlet fever, from 13.5 to 18; from whooping-cough, from 5.75 to 7.5; from tuberculous meningitis, from 17 to 18; from cancer, from 79 to 87; and from hernia and intestinal obstruction, from 10.5 to 14.75.

REGULATIONS FOR RIVER BATHING.—The Board of Health has reconsidered its determination to prohibit river baths this season, but has adopted stringent rules and regulations for their control. Floating baths must be constructed with water-tight bathing pools and, where river or harbor water is used, this must be purified so as to render it clean and sanitary. Bathing beaches are not permitted within 500 feet from a sewer outlet and water-closet accommodations in connection with such beaches must be so constructed and maintained as not to contaminate the water used by the bathers. The department, it is stated, has obtained the willing coöperation of private bath owners and of the president of the borough of Manhattan in the application of the new rules.

ST. LUKE'S HOSPITAL.—The annual report of St. Luke's Hospital shows that last year 5433 patients were treated in the wards and 22,139 in the dispensary department. In March there were 833 ward patients, the highest record for a single month. Recently an auxiliary of ladies has been organized to enlarge the social service work which St. Luke's has been carrying on for the past three years, for the relief of its convalescents and out-patients. The aims of the auxiliary are to aid the physicians and surgeons of the staff by investigating and relieving the social conditions which hamper the patient's recovery, to confirm the cure by seeing the patient safely through his convalescence, and to safeguard the general health by spreading the educational influence of the hospital throughout the homes of the community. Many a discharged patient, it is stated, finds himself, in the early stage of his convalescence, without a cent of money and without a friend to aid; while many a mother, suddenly obliged to go from her tenement home to the hospital, leaves five or six little children uncared for all day—except perhaps by a girl of eleven or twelve—until the father's return from work at night. The auxiliary aims to look after such as these and many others, and to give intelligent and effective relief through its visiting nurses and social workers.

LEBANON HOSPITAL.—At the annual meeting of the managers of Lebanon Hospital, in the Bronx, held on May 17, the reports showed that during the past year 49,057 cases were treated at the hospital, and that 2888 ambulance calls were made. The cost of maintenance, including the training-school for nurses, was $165,268.

MORTALITY FOR THE WEEK ENDING MAY 16, 1914.—There were 1533 deaths and a death-rate of 14.32 per 1000 of the population reported during the past week as against 1531 deaths and a rate of 14.87 for the corresponding week of 1913, an absolute increase of 2 deaths, and a decrease of .55 of a point in the rate equivalent to a relative decrease of 59 deaths.

Measles showed a decrease of 11 deaths, diphtheria and croup 13 deaths, whooping-cough 2

deaths, digestive diseases other than diarrheal 15 deaths, organic heart diseases 2 deaths, pulmonary tuberculosis 26 deaths, Bright's disease and nephritis 9 deaths and violence 10 deaths. The following causes showed an increased mortality: scarlet fever 4, typhoid fever 4, diarrheal diseases 5, influenza 4, all other causes 68. The number of deaths from acute respiratory was the same as in 1913.

Viewed from the point of age grouping there was an increase of 17 deaths of children under one year of age, between one and five years of age there was a decreased mortality of 41 deaths; between five and sixty-five years showed a decreased mortality of 36 deaths, and at sixty-five years and over there was an increased mortality of 62 deaths, that is the mortality at the extremes of life was considerably increased, while that of children over one year of age and adults below sixty-five years of age evidenced a large decreased mortality.

The death-rate for the first twenty weeks of 1914 was 15.35 per 1000 of the population as against a rate of 15.56 for the corresponding period of 1914, a decrease of .21 of a point.

Current Literature

Medical Record.

May 9, 1914.

1. Roberts, P. W. *The Practical Management of Chronic Osteoarthritis.*
2. Morris, R. T. *Let Us Settle the Loose Kidney Question.*
3. Bucklin, C. A. *Surgical Treatment for Reduction of Vacuum Caused by Nasal Obstructions.*
4. Luke, H. C. *Ether-Oil Rectal Anesthesia; Some Theoretical Considerations.*
5. Hubner, M. *The Practical Scientific Diagnosis and Treatment of Sterility in the Male and Female.*
6. Kahn, M. H. *Four Cases of Multiple Myeloma.*
7. Amsden, H. H. *A Case of Vincent's Angina, Treated with Neosalvarsan.*
8. Francis, C. F. D. *A Biological Treatment for Cancer.*

New York Medical Journal.

May 9, 1914.

1. Burr, C. W. *The Relation of Aphasia to Mental Disease from the Medico-legal Point of View.*
2. Lloyd, J. H. *Sensorimotor Aphasia.*
3. Southworth, T. S. *Some Observations on the Child of Today.*
4. Solomon, M. *Psychoanalysis.*
5. Benedict, A. L. *The Psychological Effect of the Fairy Story.*
6. Saphir, J. F. *Rectal Cases Under Local Anesthesia.*
7. Seelye, H. H. *Why Electrotherapy Cures.*
8. Harris, J. F. *Brachial Neuritis.*
9. Thompson, N. P. *Acute Dilatation of the Stomach Complicating Pregnancy.*
10. Brill, N. E. *In Memoriam—Dr. Edward Charles Spitzka.*

The Journal of the American Medical Association.

May 9, 1914.

1. Mitchell, S. W. *The Medical Department in the Civil War.*
2. *Voorsanger, W. C. *Palliative Effect of Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis.*
3. *Clark, A. S. *Radium Treatment of Cutaneous Epitheliomata by Single or Massive Doses.*
4. Thompson, L. *Cholesterinized Antigens.*
5. *Murphy, J. B. *Heteroplastic Tissue Grafting Effected Through Roentgen Ray Lymphoid Destruction.*
6. Ewing, H. M. *Complete Bilateral Isolated Paralysis of the Seventh Nerve Developing Four Months After the Primary Infection of Syphilis.*
7. *Corbus, B. C. *Treatment of Gonorrhea and Its Complications by Antigonococcic Serum. A Preliminary Report of Twenty-Four Cases.*
8. Force, J. N. *An Investigation of the Causes of Failure in Cow-Pox Vaccination.*
9. Crump, A. C. *A New Aid for the Diagnosis of Stricture of the Esophagus.*
10. Brown, E. J. *Acute Lymphatic Leukemia After Tetanus Serum Anaphylaxis.*
11. Willson, H. S. *A Method of Staining and Mounting Smears.*

2. Voorsanger inclines favorably to artificial pneumothorax. He does not believe it is necessary to confine the patient to a hospital for treatment. Many of his cases are done in his own office or the patients' homes. Treatment should be checked by x-ray.

3. Clark advocates the single massive dose in the radium treatment of superficial epitheliomata. He thinks it will prove the method of choice as the dosage may be measured. The two great objections to its use are the cost and length of time of exposure.

5. Murphy, working experimentally on rats and chick embryos, finds that heteroplastic tissues grow in animals treated with the Roentgen ray, probably by the removal of the lymphoid barrier.

7. Corbus finds antigonococcic serum efficient in the treatment of gonorrhea and its complications. The complement fixation test is a reliable guide to its use as the intensity and efficiency of the two are in direct proportion. The amount should be from 36 to 45 c.c., administered intramuscularly, or from 12 to 15 c.c. a day for three days. Serum sickness, even if distressing, should not be alarming. A negative test after two or three months shows complete cure.

[E. H. R.]

The American Journal of the Medical Sciences.

March, 1914.

1. *Howard, C. P. *The Etiology and Pathogenesis of Bronchiectasis.*
2. Conner, L. A., and Downes, W. A. *Spontaneous Rupture of the Spleen in Typhoid Fever, with Report of a Case Cured by Operation (Splenectomy).*
3. *Wilson, L. B. *A Study of the Pathology of the Thyroid from Cases of Toxic Non-exophthalmic Goitre.*
4. *Rowntree, L. G. *The Study of Renal Function: the Prognostic Value of Studies of Renal Function.*
5. McCarthy, D. J. *Iron Infiltration in the Fixed and Wandering Cells in the Central Nervous System.*

6. *KNOPF, S. A. *A Practical Apparatus for the Production of Therapeutic Pneumothorax. With Some Notes on the Modus Operandi, Indications and Contra-indications.*
7. *WOOD, G. B. *Tonsillar Infection: A Preliminary Report Concerning the Passage of Anthrax Bacilli Through the Tonsillar Tissues as Determined by Experimental Research.*
8. PUTNAM, J. J. *On Some of the Broader Issues of the Psycho-analytic Movement.*
9. WEINBERGER, W. *An Improvement of the Benedict Method for the Determination of Sugar in the Urine.*
10. SCHWATT, I. J. *The Application of the Calculus to the Medical Sciences.*
11. SUTTON, R. L. *A Clinical Note on Fibroma Molluscum Gravidarum.*
12. PEMBERTON, R. *The Metabolism, Prevention, and Successful Treatment of Rheumatoid Arthritis. Second Contribution (Concluded).*

1. Howard's article on bronchiectasis is an able discussion of the etiology of the condition with illustrative cases. It is concluded that the condition is clinically not an infrequent one, being too often mistaken for pulmonary tuberculosis. The possibility of a foreign body or of syphilitic stenosis as etiological factors must always be considered. Inflammatory causes are the most frequent. As to the mechanism of production, the most plausible theory is that of Ewart, attributing the dilatation to the joint action of a faulty distribution of air space and bronchial obstruction.

3. Wilson reports further analyses of cases of goitre. His pathological evidence seems to show a constant relative association of increased secretion and increased absorption from the thyroid gland proportional to the degree of toxicity on the part of the patient.

4. Rowntree discusses the significance of the numerous tests of renal function which have recently come into prominence. He concludes that the phthalein test is the one most deserving of general application. When this reveals decreased excretory capacity, one of the blood tests, urea, total non-coagulable nitrogen, or serum cryoscopy, should be employed to determine the presence or absence of cumulative phenomena in the blood.

6. Knopf describes an improved apparatus for producing therapeutic pneumothorax in tuberculosis, and states concisely the indications and contraindications for this treatment. It is recommended in general for cases that have failed to respond favorably to general medical treatment, obstinate hemorrhage and bronchiectasis. The chief contraindications are extensive involvement of both lungs, much cavity formation, pleurisy, ascites or other abdominal distention, cardiac, renal or constitutional disease. It is not recommended in early and favorable cases.

7. Wood reports observations upon the manner of entrance of anthrax bacilli into the tonsil of the hog, showing that they penetrate only through the crypts, passing apparently through the living unaltered cryptal epithelium. [F. W. P.]

APRIL, 1914.

1. *MAYO, W. J. *Cholecystitis Without Stones or Jaundice in Its Relation to Chronic Pancreatitis.*
2. *RUHRÄH, J. *The Treatment of Pylorospasm in Infancy.*
3. DOUGLAS, J., AND EISENBREY, A. B. *Tuberculosis of the Spleen, Septic Infarction, Polycythemia, Splenectomy.*
4. COLLINS, J., AND ELSBERG, C. A. *Giant Tumors of the Conus and Cauda Equina.*
5. *GOODMAN, E. H. *Some Cases of Hypotension Associated with a Definite Symptomatology.*
6. *NICHOLSON, P. *The Clinical Significance of Diastolic and Pulse Pressure.*
7. SIMON, C. E., AND WOOD, M. *The Inhibitory Action of Certain Anilin Dyes upon Bacterial Development. (Second Communication.)*
8. *KRUMBHAAR, E. *Diagnostic Value of Percutaneous Tuberculin Test (Moro).*
9. DILLER, T., AND MILLER, R. T. *The Successful Removal of a Tumor from the Frontal Region of the Brain.*
10. *FARR, C. B., AND WILLIAMS, P. F. *The Total Non-protein Nitrogen of the Blood in Pregnancy and Eclampsia.*
11. PALMER, C. D. *Prolapse of the Ovary; Its Rational Treatment.*
12. JUMP, H. D., BEATES, H., AND BABCOCK, W. W. *Precocious Development of the External Genitals Due to Hypernephroma of the Adrenal Cortex.*
13. *BOND, E. D. *Symptoms Suggesting Pituitary Disorder.*
14. *BARNES, H. L. *The Value of Auto-inoculation in Pulmonary Tuberculosis.*
15. *JANEWAY, H. H. *The Early Symptomatology of Cancer of the Esophagus.*

1. Mayo describes cases of chronic cholecystitis, especially those which he calls the "strawberry type" from the appearance of the lining mucosa of the gall-bladder, with an indurated condition of the head of the pancreas, which he believes to be evidence of chronic pancreatitis. In certain cases of this type treated by drainage of the gall bladder relief occurred, while the drainage persisted, but symptoms recurred as soon as the drainage was discontinued. He believes that removal of the gall-bladder is indicated, cholecystectomy in his cases having given prompt and permanent relief.

2. Ruhräh calls attention to the condition of pylorospasm in infancy in distinction to that of congenital hypertrophic stenosis of the pylorus. These disorders, while similar in their manifestations and perhaps related in their etiology, differ in that the pylorospasm is accompanied by less violent symptoms, is of much better prognosis, and does not always appear immediately after birth. In treatment he emphasizes the necessity of the use of breast milk, and speaks favorably of the giving of atropine in 1-2000 grain doses every four to six hours.

5. Goodman describes cases in which the blood-pressure is found to be subnormal, particularly in association with symptoms of neurasthenia. In a number of these improvement was effected by treatment, after which the blood-pressure was found to have increased. This treatment consisted chiefly of general tonic measures, such as gymnastic exercises and hydrotherapy, which are given in detail. Drug treatment played little part, although some reliance is placed upon strychnine.

6. Nicholson urges that greater attention be devoted to the observation of diastolic as well as of systolic blood-pressures, the former being now readily determined by the auscultatory method. He also describes a portable mercury sphygmomanometer which he has devised, less bulky than those in common use.

8. Krumbhaar and Musser report a series of 149 cases in which the Moro percutaneous tuberculin test by inunction of a tuberculin paste in lanolin was applied. The tendency to react positively in cases clinically not tuberculous, which has caused the von Pirquet test to be discarded for use in adults, was little in evidence, since in 76 unselected non-tuberculous cases only 5 failed to give a negative reaction, and in only 2 was the reaction definitely positive. Of 44 tuberculous cases all reacted positively with the notable exception that of 10 cases of far advanced pulmonary tuberculosis 9 reacted negatively and 1 doubtfully positively, a finding consistent with the results of other tuberculin tests in advanced tuberculosis. It is concluded that the prevalent opinion that positive reactions in adults are of little or no value is erroneous.

10. Farr and Williams find that in normal pregnant women the total non-protein nitrogen does not usually exceed 30 mg. per 100 c.c. of the whole blood, but may reach 40 mg. or more without demonstrable renal lesions. In all of their cases in which there was definite renal insufficiency or eclampsia, with one exception, there was always a slight, and in most cases, a marked, increase in the total non-protein nitrogen, similar in degree to that found in parenchymatous nephritis, but less than that found in interstitial nephritis. The retention, however, bore no relation to the severity of the symptoms, and its significance is regarded as inferior to that of rising blood-pressure albuminuria and the general clinical picture.

13. Bond urges a closer scrutiny of insane patients for evidence of pituitary disorder. In 1600 consecutive autopsies on insane patients, lesions of the pituitary body were found in 45, and in a brief survey of the inmates at one time of the Danvers Hospital 10 cases with suggestive symptoms were found.

14. Barnes reports experience with graduated exercise in pulmonary tuberculosis similar to Patterson's auto-inoculation method. While he regards this treatment as advantageous where it can be carried out without inducing symptoms, and as of value as a test of the patient's fitness to return to work, he warns against the belief that fever reactions or auto-inoculations are other than harmful.

15. Janeway has analyzed the first symptoms of 21 cases of cancer of the esophagus, finding that dysphagia is not by any means always the first to appear, and that in a small minority only was the diagnosis made before three or four months after the patient had symptoms. [F. W. P.]

Bulletin of The Johns Hopkins Hospital.

May, 1914.

1. *Miller, S. R., and Levy, R. L. *The Colloidal Gold Reaction in the Cerebrospinal Fluid.*
2. *Sellards, A. W. *The Essential Features of Acidosis and Their Occurrence in Chronic Renal Disease.*
3. Campbell, C. M. *The Work of the Out-Patient Department of the Henry Phipps Psychiatric Clinic.*
4. Whitham, L. B. *Dystrophia Epithelialis; Report of a Case.*
5. Charlton, M. *Louis Hébert.*

1. The writers conclude that the gold test is essentially a laboratory method requiring extreme care in preparing reagents and cleaning of glassware. Normal fluids give normal reactions; the test has no value in purulent or tuberculous meningitis, and has no advantage over known laboratory methods in diagnosing syphilis. Reactions are inconstant in secondary and tertiary stages; positive reactions observed in the majority of cases of tabes and cerebrospinal syphilis are not characteristic, while the reaction peculiar to paresis seems to be of some value in differential diagnosis.

2. Sellards states that the essential feature of acidosis consists in a general impoverishment of the body in bases or in substances which readily give rise to bases. The fundamental features of every acidosis as thus far established are: (*a*) an increase in the tolerance of the body to fixed bases, (*b*) a diminution in the titratable alkalinity of the body serum, and (*c*) a diminution in the carbon dioxide of the blood. An acidosis of high grade occurs in certain nephropathies, especially in the uremia of acute and chronic diffuse nephropathy. It is not a terminal event and is often present in relatively high grade outspoken cases many months before the development of the uremia. It represents the effect rather than the cause of the renal lesions. [J. B. H.]

The Journal of Infectious Diseases.

March, 1914.

1. *Ayers and Johnson. *Pasteurization in Bottles and the Process of Bottling Hot Pasteurized Milk.*
2. Dick. *Ferments from Carcinomatous Protein in the Blood in Carcinoma.*
3. King and Drake. *Some Phenomena Involved in the Life History of Spirochaeta Suis.*
4. Drennan. *A Non-Cholera Vibrio Resembling the True Cholera Vibrio and a Pigment-forming Vibrio.*
5. *Jansen. *The Disinfectant Action of Certain Bacterial Stains.*
6. Williams et al. *A Study of Trachoma and Allied Conditions in the Public School Children of New York City.*
7. Park, Famulenor and Banzhaf. *Influence of Protein Content on the Absorption of Antitoxin and Agglutinin Injected Subcutaneously.*
8. Park, Famulenor and Banzhaf. *Serum Sensitization as Related to Dosage of Antitoxin in Man and Animals.*
9. Pearce and Williams. *Protective Enzymes, Cytotoxic Immune Sera and Anaphylaxis.*
10. Lake, Osborne and Wells. *The Immunological Relationship of Hordein of Barley and Gliadin of Wheat as Shown by the Complement Fixation, Passive Anaphylaxis and Precipitin Reactions.*
11. Wells and Osborne. *The Anaphylactogenic Activity of Some Vegetable Proteins.*
12. Lake. *The Immunological Reaction of the Proteins of the Human Placenta, with Special Reference to the Production of a Therapeutic Serum for Malignant Chorion-Epithelioma.*

1. Pasteurization in bottles is a safe and easy process, provided the temperature is maintained within the bottle a sufficiently long time. The one drawback to this method is the expense of water-tight caps, which are necessary. To avoid this the milk is first pasteurized and then, while hot, is poured into bottles which have just been steamed for two minutes. This process is safe, inexpensive and easy. In this way bottle infection is eliminated and the ordinary cardboard caps may be employed. The bottles are air cooled. The sole disadvantage of this method is the loss of time in those plants where milk is delivered directly after pasteurization.

5. Aqueous solutions of methyline blue of fuchsin show very slight bactericidal power. Such solutions of gentian violet, however, are markedly bactericidal to gram-positive organisms, even in very weak solutions. Anilin gentian violet and carbol fuchsin, as made up for staining, show a decided disinfectant action upon cover glass preparations. This action is due to the stain, especially in the former case; mice controls, controls consisting of dried, fixed, but unstained preparations, showed organisms in the subcultures. No such bactericidal action was produced by laboratory methyline blue. Those facts are of practical importance to laboratory workers. Mice slides and cover glasses may in some instances, but not in others, be handled with safety, according to the stain employed. [L. H. S.]

The Lancet.

April 25, 1914.

1. *Ormerod, J. A. *The Lumleian Lectures on Some Theories Concerning Hysteria. Lecture I.*
2. *Watson, D. C. *Intestinal Toxemia, with Special Reference to the Indications for Operative Treatment.*
3. Adams, J. E. *The Drainage-tube in Abdominal Surgery.*

4. BALFOUR, A. *The Wild Monkey as a Reservoir for the Virus of Yellow Fever.*
5. FREEMAN, J. *Vaccination Against Hay Fever; Report of Results During the Last Three Years.*
6. RAMSAY, A. M. *The Use of Omnopon-Scopolamine Combined with Local Anesthesia in Ophthalmic Surgery.*
7. WHITEHEAD, G., AND MORLEY, J. *Extraperitoneal Uretero-Lithotomy through a Median Suprapubic Incision.*

1. Ormerod, in this first Lumleian Lecture, discusses in a general way hysteria, its relation to neurasthenia, its symptoms, such as hysterical fits, anesthesia, hysterogenic zones, contractures, skin affections, edema, wasting, ecchymosis, et al.

2. Watson, describing the various clinical manifestations of intestinal toxemia, believes that treatment is largely medical and in the earlier stages it can be cured if medical treatment is efficiently carried out. In advanced cases, however, surgical intervention seems to offer the only hope. X-ray examination is essential to arrive at a proper diagnosis. Lane's short circuiting operation is simple, but in inexperienced hands is often unsatisfactory. Before any operation a prolonged course of medical treatment is advisable. [J. B. H.]

BRITISH MEDICAL JOURNAL.

APRIL 25, 1914.

1. *DAVIES, H. M. *The Therapeutic Value of Gases Introduced into the Pleural Cavity.*
2. ROUTH, A. *The Need For Research in Ante-natal Pathology.*
3. HANDLEY, P. A. *Pituitrin in Labor.*
4. BUIST, R. C. *Two Cases of Pregnancy in Uterus Subseptus.*
5. JAMISON, P. *Carcinoma of the Stomach; Gastrectomy.*
6. *SYMES, J. O. *The Association of Erythema Nodosum and Tuberculosis.*
7. ELLIOT, R. H. *The Experiences of Surgeons in Sclero-Corneal Trephining.*
8. BLACKLOCK, B. *On the Multiplication and Infectivity of T. Cruzi in Cimex Lectularis.*

1. Davies believes that those cases of phthisis suitable for artificial pneumothorax are: (1) those with a persistent fever, (2) profuse or repeated hemorrhage, and (3) cases with cavity formation. He describes in detail his technic, and among complications mentions pleural reflex and gas embolism. He is in favor of frequent refillings at first and of keeping up the treatment for at least eighteen months. He discusses immediate and remote results, the value of other forms of treatment, tuberculin, exercises, etc., in conjunction with nitrogen treatment. He also speaks of this treatment for bronchiectasis and putrid bronchitis. There are some excellent plates.

6. Symes presents evidence which is fairly conclusive showing the close connection between erythema nodosum and tuberculosis, although he believes that in certain forms at least the disease is a distinct clinical entity. [J. B. H.]

THE QUARTERLY JOURNAL OF MEDICINE.

VOL. 7. NO. 27. APRIL, 1914.

1. *BUTTERFIELD, H. G., AND HUNT, G. H. *Observations on Paroxysmal Tachycardia.*
2. *MCNEE, J. W. *Cholesterin: An Account of Its Relations to Pathology and Physiology.*
3. *THURSFIELD, H. *Bilateral Salivary Swellings. A Clinical Review.*
4. *KEMP, C. G. *On the Prognosis of Acute Articular Rheumatism, with Special Reference to the Cardiac Manifestations.*
5. MCINTOSH, J. *Critical Review: Anaphylaxis and Its Bearing on Medicine.*
6. SIMONS, I. *Critical Review: Bacterial Endocarditis.*

1. Four cases of paroxysmal tachycardia are reported, with histological examination of the heart in three of them. The latter confirmed the clinical diagnosis, which was based on the study of electrocardiograms and of venous tracings. In the first case the extra-systoles appeared to be of ventricular origin, for the auricular rhythm was undisturbed and the form of the extra-systoles differed from that of beats of supraventricular origin. At the autopsy a marked lesion was found in the interventricular septum, consisting of fibrosis involving two-thirds of the thickness of the wall. The second case was clinically, judging from the shape of the beats in the electrocardiogram and the presence of an auricular wave in the venous tracing, a paroxysmal tachycardia of auricular origin. At the autopsy there were found a well marked infiltration with lymphocytes and two small hemorrhages in the region of the sino-auricular node. The a-v node and bundle were intact. In the third case, also of auricular origin, there were perivascular lymphocytic infiltrations about the sino-auricular node.

2. McNee reviews the recent work on cholesterin in the blood and tissues, including some interesting studies of his own. The cholesterin content of the blood is increased in a number of conditions, *e.g.* Bright's disease, diabetes, jaundice, adiposity, arteriosclerosis and pregnancy. Where the amount in the blood is too large the cholesterin of the bile is increased also. Hence the relation of pregnancy, and adiposity, to gall-stones, especially the solitary stone of pure cholesterin, which, as the researches of Aschoff show, may arise without inflammation. These facts also explain the association of exanthemata, in which the cells are stuffed with cholesterin, with diabetes and chronic jaundice; also the "white spots" in the retina, which consist of cholesterin, with Bright's disease and diabetes.

3. The Mikulicz syndrome consists of bilateral painless swellings of the salivary, and sometimes of the lachrymal glands. It is sometimes associated with enlargement of the lymph nodes and spleen, with or without the blood changes of leukemia. Thursfeld's case was remarkable for the rapidly fatal course and the blood picture, that of an "aplastic" anemia with marked decrease in the leucocyte count and lymphocytosis. He calls it aleukemic leukemia.

4. Kemp examined the hearts of a large number of cases of acute articular rheumatism two years or more after they left the hospital, to determine whether the murmurs heard were due to organic disease of the valves, or to mitral insufficiency resulting from myocarditis. The results confirm the statements of Romberg and others that myocarditis is a frequent cause of such murmurs, for 22% of the cases developed signs of carditis, which disappeared during convalescence, and in 20% of those who showed signs of endocarditis not clearing up before discharge from the hospital, a later examination showed the heart to be quite normal. Only 22% of the total number showed no signs of cardiac disease throughout the acute attack. [W. T.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 16. APRIL 21, 1914.

1. *NEUBAUER, O. *Creatinin as a Test for Renal Function.*
2. WILMS. *Artificial Solidifying Fluid in Tuberculosis of the Lung.*
3. ABDERHALDEN, E. *The Discovery of Protective Ferments by Colored Substrata.*

4. Abderhalden, E., and Wildemuth, F. *Repeated Dialysis in Determining Protective Ferments by the Dialysis Method.*
5. Rosenthal, F., and Biberstein, H. *Experimental Studies on the Specificity of Proteolytic Serum Ferments. Third Communication.*
6. Abelin, J., and Perelstein, M. *The Perishable Factors of Coffee.*
7. Bache, M., and Auel, W. *The Influence of Breathing on Albumin and Carbohydrate Metabolism.*
8. Decker. *The Necessity for Albumin in the Diet in Relation to the Increased Cost of Meat.*
9. Lindbom, O. *Sennatin.*
10. Fuchs, W. *Epilepsy and Luminal.*
11. Lehnert. *The Treatment of Anomalies of the Blood with Dürkheim Spring Water and Arsenic Baths.*
12. Mann, M. *A New Symptom of Cerebellar Abscess.*
13. *Beck, R. *Two Cases of Nutmeg Poisoning.*
14. Gerbis, H. *A Peculiar Condition of Narcosis from Chlormethyl.*
15. Heinemann, O. *The Diagnosis of Salivary Stones.*
16. Mayer, H. *Grotan as a Therapeutic Remedy.*
17. Schneider, E. *An Arm Cuff to Aid Intravenous Injections.*
18. Wintz, H. *A New Finger Curette.*

1. Neubauer has introduced creatinin as a test for renal function. Normally, creatinin is formed from endogenous protein destruction and thus the amount excreted is nearly constant without regard to the diet. Neubauer considers that this fact makes the excretion of the substance a valuable test for renal function, since patients to be studied require no special diet, and can be observed when they are up and about, as well as when they are in bed.

To make the test, the creatinin excretion is followed every four hours for three days. On the second morning a test meal is given which contains 105 gms. of the pure substance dissolved in sugar-water. Normally it is excreted almost immediately. With diseased kidneys, its excretion is delayed in proportion to the degree of functional disturbance. For the differential diagnosis between marked passive congestion and true nephritis, the test is of as little value as are most of the other tests based upon the excretion of physiological substances. Marked disturbances of creatinin excretion occur with congestion as well as with nephritis. Finally, in advanced nephritis, creatinin accumulates in the blood significantly, and parallels the retention of nitrogen and urea.

13. Beck reports, on account of its rarity, two cases of nutmeg poisoning which occurred in two of the hospital servants. Two women prepared a drink of nutmeg, cinnamon and wine, and after taking it, remained in a comatose condition for a considerable period. Both recovered. The mixture was taken by one to induce abortion, and by the other to make a diagnosis of early pregnancy, since she had been told that nutmeg would induce menstruation in the event of lacking pregnancy.

Beck reviews the literature on the subject of the toxicity of nutmeg. It has been used in the cases reported to induce abortion, and has produced the symptoms of stupor which were seen in Beck's cases. The pharmacological basis for its supposed action appears to be the fact that its oils in enormous dose cause congestion of the abdominal and pelvic organs. [R. F.]

Revue de Médecine.

February, 1914.

1. Lepine. *New Internal Secretions and New Functions of Vessels.*
2. Larbé and Bith.—*Amino-aciduria Provoked by the Ingestion of Peptone and the Diagnosis of Hepatic Insufficiency.*
3. *Debré and Paraf. *"The Antigen Reaction" (Completed).*

3. The conclusions which Debré and Paraf draw from the present and previous articles upon the use of a complement-fixation reaction upon tubercular fluids are of great value. The reaction is specific in a very high percentage of cases when performed on the urine secreted by kidneys, affected by almost any variety of tuberculosis,—whether granular, ulcerative, or even amyloid. Such reactions are not present in the urine from healthy kidneys even of individuals suffering from pulmonary tuberculosis. Similar reactions have been performed with great success in pleural and abdominal fluids, whether serous or purulent. The application of the test to cerebro-spinal fluids and blood sera has not been productive of very constant results. Its use in sputum is encouraging and deserves further trial. [L. H. S.]

Bullettino delle Scienze Mediche.

November, 1913.

1. *Schiassi, B. *Sub-Total Resection of the Stomach.*
2. Guerrieri, R. *Zoösperms Included in Lamellar Seminal Concretions and in Urinary Calculi in Relation to Medico-Legal Researches.*

1. In this continued and concluded article, Schiassi describes details of technic and indications for procedure, and presents clinical demonstrations and radiographic documents. His work is an elaborate and well executed piece of clinical study and research. [R. M. G.]

December, 1913.

1. *Ravà, G. *So-Called Paralytic Oculo-Cephalic Deviation from Lesion of One Cerebral Hemisphere.*

1. Ravà reports and discusses 16 cases presenting the symptom-complex described in his title. He believes that such deviation is not solely dependent on the paralysis, but is determined by the activity of healthy sensory centres not counterbalanced by corresponding activity of injured homologous sensory centres, principally those of vision. [R. M. G.]

Miscellany.

MEDICAL STATUS OF THE UNITED STATES ARMY.

In the current issue of the *Engineering Record* is an article by Dr. William C. Gorgas on army camp sanitation. The following extract may serve to represent the opinion of the surgeon-general on the medical status of our troops in case of possible war in Mexico.

"In the event of an invasion of a sub-tropical country by our army the sanitary precautions to be observed by our troops would be of supreme importance. Our precautions must, however, begin at home in our assembly and concentration camps. In the war with Spain in 1898 we were handicapped by lack of training and experience

in camp sanitation. We had practically no experience in the tropics. The great development of preventive medicine was not then in a stage convenient for practical application.

"In any contemplated occupation of a country lying partly in the tropics by an army coming from the temperate zone there would be two stages to consider with reference to the precautions necessary to the preservation of the health of such a command—first, the measures required to avoid the "camp diseases" in the homeland while the troops were mobilizing and training and second, the measures required to avoid the diseases peculiar to the country to be occupied. The first sanitary precaution is to secure healthy soldiers—physically sound men. Then it is necessary to safeguard their health while in training by giving them pure food, water and healthy camp surroundings and by preventing the entrance to such camps of infectious diseases.

"When we have to deal with the question of potable water in the enemy's country, and especially in the field, we deal with a more difficult problem, but by no means a hopeless one. Efforts are made to ascertain the quality of the water by examinations and by its reputation when that is practicable. When deemed necessary—and this is the case with all surface waters in the tropics, unless we except some mountain streams—we try to render the water safe for drinking purposes by such measures as may be possible in the field. However, it will often occur that under military stress, lack of time and transportation, troops for short periods must use the water that the natives depend upon. Under these circumstances we may look for the appearance of such diseases as are water-borne and are prevalent in the communities using the water. The methods to render the water potable are naturally those used in temporary emergencies as a rule—boiling, filtering and the use of chemicals. Portable appliances are used in the army to render the water safe.

"Only less important than a supply of potable water in camp is an efficient method for the disposal of human wastes. Excreta in camp become a most dangerous focus for the dissemination of such diseases as are spread through this means by direct contamination or pollution of water and milk and by flies. In the last large camps maintained by the army in Texas in 1911 and 1913 a most efficient system was used. On still larger scale but for a shorter time the same system was in use at the Gettysburg reunion in 1913. For a year in the Texas camps this system has given complete satisfaction.

"Flies spread typhoid, dysentery and perhaps other diseases. It is necessary, then, to devise a method of gathering and destroying both stable sweepings and kitchen wastes. In camp the army has disposed of this by burning the sweepings after they are gathered at a dump and by burning right at the kitchen door the wastes therefrom. Moving troops in the field, as a rule, have no trouble with the disposal of these wastes, as they are so scattered that the amount constitutes no menace.

"In such an army as might be mobilized for service abroad we would expect some 120,000 regulars, and twice as many volunteers. There will be, therefore, a considerable proportion of green men to be taught camp sanitation, as well as given military instruction. Much of this will be given in concentration camps. There exists a yeast to leaven the whole that was absent in 1898. Since that year the officers of the medical department of the army have been studying and practising military hygiene and sanitation with brilliant results, as demonstrated in the two large camps in Texas. Here ten thousand men lived for a year at a time with sick rate lower than that at the average post. The army, then, is in an entirely different position from that at the outbreak of the Spanish War.*

"Anti-typhoid inoculation which has been in vogue in the army since 1909, and which so efficiently protected it in 1913 that there was but one case among the inoculated in the army of 90,000, is to be trusted to keep our camps free of this disease so fatal to armies of the past. The dysenteries will be held in abeyance by many of the precautions that prevent typhoid, particularly the safeguarding of water and the early exclusion of such cases from the camps. Yellow fever is robbed of much of its terror by the fact learned in 1898 by Reed and his devoted band, which taught us the means of transmission and, consequently, the manner of avoiding it. One other disease, typhus fever, we have learned, is spread by the bite of the louse, and, in consequence, we are enabled to limit its ravages.

"Thus, forewarned, we are forearmed and enter any campaign confident of our ability and in the sanitary training of the line to feel that we can exist in the campaign in a state of "hygienic competence" that the disabilities of the war will be limited, for the first time in the history of the New World, to wounds, and that disease will not kill more than bullets. The American people will have what they should have for the generous support given every year—the most efficient army of its size in the world."

* [During the Spanish War of 1898, 20,000 cases of typhoid fever occurred among our soldiers in the field or in camps.—ED.]

CANCER MEETING IN BOSTON.

AT the invitation of the Boston City Federation the American Society for the Control of Cancer held a public meeting for the discussion of the cancer problem at Huntington Hall, Boston, on Tuesday afternoon, May 19. Similar meetings have recently been arranged by the Cancer Society in New York, Chicago, St. Louis, Pittsburgh and other cities.

The meeting was under the auspices of the Boston Federation of Women's Clubs. Since the

meeting was held on the same day as the opening session of the annual meeting of the American Gynecological Society, when many visiting physicians were in Boston, it was possible to secure speakers representing a widely distributed experience, who discussed the various phases of cancer with an unusual degree of authority.

The president of the Boston Federation of Women's Clubs, Mrs. Frank L. Young, opened the meeting as chairman, and Dr. Edward Reynolds, vice-president of the A. S. C. C., introduced the first speaker, Frederick L. Hoffman, LL.D., statistician of the Prudential Life Insurance Company of America and chairman of the committee on statistics of the A. S. C. C., who presented the evidence of "The Prevalence and Increase of Cancer in the United States." The work and purposes of the American Society for the Control of Cancer were described by Dr. F. F. Simpson of Pittsburgh, Pa., one of the founders of the Cancer Society and a member of its executive board. Dr. J. Collins Warren of Boston, a trustee of the Society, discussed the cancer problem from the point of view of the Huntington Cancer Commission of Harvard University of which he is chairman.

The second half of the meeting was devoted to a symposium of public education on cancer in which a number of physicians of recognized authority in their special fields indicated what the public should know about this disease in order to avoid its suffering and mortality. Among these five minutes' addresses were the following: Dr. Mixter of Boston spoke on cancer of the digestive organs. Dr. Walter W. Chipman of Montreal discussed cancer of the breast. Dr. Howard C. Taylor of New York discussed uterine cancer, and Dr. David Cheever of Boston described the symptoms and treatment of external cancer.

The need of public education and the social aspects of the cancer problem generally were summarized in a brief address by Rev. Dr. George A. Gordon who closed the meeting.

Correspondence.

PARIS LETTER.

THE MEDICAL ATMOSPHERE OF THE RENAISSANCE, AS PORTRAYED IN SOME EARLY FRENCH WRITERS.

I. PHILIPPE DE COMMYNES.
(1490, Circa.)

(From Our Special Correspondent.)

PARIS, April 16, 1914.

"Dixisse me aliquando penituit, tacuisse nunquam."

(Inscription on the wall of the dungeon at Loches, ascribed to Ph. de C.)

Mr. Editor: In a former letter (January 9, 1913) I dwelt at some length on the medicine of the 17th century in France, as revealed in Molière's "Malade Imaginaire" (1673), and on how man's substratum of plain commonsense *will* come to the fore and protect him, in spite of all that perverse thought and erroneous doctrines can accomplish toward his undoing: *e.g.* the course of treatments applied by Dr. Purgon, and the friendly advice of the level-headed brother: sager counsels could hardly be preferred even at the present time than those of Béralde.

But if we go further back still, to the early times of the Renaissance, and examine the leading writers of the day, we again find a similar state of affairs: on the one hand what we can scarcely call anything else than sheer folly, in medical circles, acceptable to a certain number of panic-stricken patients; and on the other, the part of the population which (even in a state of illness, as in the case of Montaigne) looked on the question from a practical and sensible standpoint, and refused absolutely to be duped by the errors and superstitions of the practitioners of the epoch.

There are among the interesting old writers of that period, three who stand out preëminent in this respect,—Philippe de Commynes, our excellent confrère François Rabelais, and Michel de Montaigne, and I think that a brief exposition of their views on medical matters may not prove devoid of instruction. If I were to take these authors in their order of interest, that incomparable master of good-humored satire, Rabelais would unquestionably be entitled to precedence. But it will be best to treat them chronologically, and in this respect Commynes comes first, his classical Mémoires dating from the end of the 15th century, just about the time of the discovery of America, to be exact.

This book is one of the chefs d'oeuvre of French literature, as can be imagined when I say that after a lapse of over four centuries it still reads as easily as a novel and is said to be, after the Holy Scriptures, one of the works that has been re-issued the oftenest. Philippe was the intimate friend and counsellor first of Charles, Duke of Burgundy, and then of three kings of France in succession, Louis XI, Charles VIII and Louis XII; but it is chiefly with the reign of Louis XI (1461–1483) that he deals, and his portrait of this ruler is the standard on that subject. Whether we consider his remarkable delineation of the political atmosphere of the day, his power of description, his astounding memory *ex post facto* of the entangled threads of intricate negotiations, or his philosophical reflexions as to the difficulties of being King in this world,—all is equally absorbing; and at the same time the quaint old French in which the narrative is couched adds manifestly an element to the story, as *we* see it, that must of course have been lacking to readers of the times, although Montaigne, who wrote nearly a century later, and who refers in his Essays to the works of both Rabelais (who came between the two) and Philippe, speaks of him in the most flattering terms, toward the end of Chapter X, Book II.

Not among the least interesting of de Commynes' characteristics is his implicit faith in Divine Providence and evident conviction of the presence of a personal guiding-hand in all matters, public or private, as well as of his, Philippe's, ability to see the action of this hand and detect its purpose. The fashion in which Philippe carries his Providence, as it were, about with him in his breast-pocket, and brings it in whenever called for, despatching the believer, no matter how sinful, to paradise, and the infidel, no matter how deserving, to sheol, is really remarkable, on the part of one of the most prominent and capable men of the day. For instance, in referring to the death of a certain Turkish prince he remarks: "en cecy ne parle point dudit Turc, car je tiens ce point pour vuidé et qu'il est logié avecques ses prédecesseurs." This comes pretty near to the doctrine of the Wahabees, who are reputed to claim that the world is divided into 73 religious sects, of which theirs alone is destined to salvation.

Philippe has left no actual discourse on medical matters, as did Montaigne and Molière; but he was more

or less mixed up with the end of several very prominent men, and in particular of Louis XI, and was in this way led to chronicle various doings and sayings that throw light on the medical customs of the times, although so far as he personally was concerned, his clear intellect appears to have enabled him to take a rational view of medical matters and to estimate the science of his day at its true value.

Taking up, then, first the case of Louis XI,—this sovereign had an initial stroke of apoplexy in March, 1480, a second one the year following, and his final illness in August of 1483,—a total duration of three and a half years. Louis was an unusually authoritative man, even for those days, had his way in all matters, and exacted implicit submission from everyone connected with him; and in particular the historian remarks that "by nature he was disposed not to place faith in the advice of physicians." But he also says: "never did man fear death so greatly,"—so much so that he constantly directed those about him, in event of illness, to be careful what they said to him, to advise him merely to confess himself, and not to make use of the word death. Yet observe the irony of Fate! This domineering spirit, that doubted his physician's word, and lived in terror of death and all connected with it, was finally forced to place himself implicitly in the hands of his intimates, became terrorized by his medical attendant whom he placated by the payment of large sums of money, and finally had his death-sentence served to him in such a brutal manner as to draw forth the indignation of even such a moderate and reserved man as the historian.

Commynes was away at Argenton, his château, when the first stroke occurred near Chinon, and it is a curious coincidence that he was likewise absent in the same manner when Charles VIII had his cerebral hemorrhage at Amboise. However, he describes the event evidently from the account of the spectators, and we have here in a few lines an exact tableau of what practically always takes place when a medical catastrophe strikes one of a group of laymen, who with this apparently irresistible human impulse to be doing something, although utterly ignorant of the elements of the proposition, find it impossible to refrain from making a bad job worse, and seem the more determined in their misguided efforts in proportion to their lack of intelligence. Could anything be more descriptive of this state of mind than Commynes' half dozen lines: "at dinner he was seized with a stroke and lost the power of speaking. He was removed from table and kept near the fire, with the windows closed; and although he made every effort to get to them, his companions prevented him (acting for the best, as they thought)." So much for that part of the scene, now comes the complement, the arrival of the medical man. He, naturally, has also to appear to be doing something; but as it would never do to let the laymen think they had acted correctly, the man of art usually orders the opposite to what has already been done; sits the patient up, if he had been laid flat, gives him air, or water, if these have been witheld, and so on: "Thereupon you arrived, who were his physician at that time, and at once gave him an enema and opened the window to let in the air." Now if this whole scene is not the neatest little piece of irony on the classical performance on such occasions, then I confess to being grossly mistaken.

Little by little speech began to return to the royal patient, whose first act was to unburden himself to his confessor who had been summoned from Tours, although, as the historian remarks, "he had not very much to say, as he had already confessed himself a few days previously, because, when the Kings of France wish to lay hands on those afflicted with scrofula, they first go to confession, and our King never failed in this (laying on of hands) once every week. If the others (kings) do not do this, it is a great pity, as there are always plenty of sick people." We are here, consequently, right in the heyday of those fortunate times when organic disorders yielded to the contact of divine right! Being now in a state of grace and filled with the milk of human kindness, Louis' next act was the following. He inquired and ascertained who were those that had restrained him by force on the occasion of his stroke; these he at once drove from his court, taking from some of them their positions and dismissing them once and for all, while from others he took nothing but sent them off. "Many were astounded at this action, which they criticized adversely, saying that they had acted for the best, and so they had"; but Louis was so in fear of anyone venturing to infringe on his rights, even with the purest of intentions, that nothing of this sort could be tolerated.

If now we turn to his final illness, August, 1483, which lasted from Monday to Saturday, we find ourselves in the presence of a very different man. Louis is now broken in spirit, suspicious of everyone, in terror of death, and placing his last hope in holy men and physicians. And here again we have the usual tableau of such occasions: the infinite hoping against hope, "for notwithstanding his misfortunes his courage rose and he quite expected to recover"; truly Aeschylus never had a deeper thought than when he made Prometheus take away from mortals the power they once had of foreseeing future events, and gave them in its stead *blind hope*,—observe the force of the qualifying adjective,—hope in spite of anything, everything and everybody, what would life be without hope,—an unthinkable nightmare.

The other characteristic of such crises is the feeling of hate toward the medical attendant; when the patient finally comes to the realization that his end is near; when *their* life is at stake the man of science ought to be able to arrest the flight of time, to change the order of the seasons, and to reverse the orbits of the celestial bodies. Connected with this frame of mind is the thought, generally felt, sometimes openly expressed, that if the medical attendant would only give himself the trouble, a remedy could be found! To gain this end no means is too vile. With Louis it took the form of bribes: "his physician, Maître Jacques, in whom he had complete confidence, and to whom he gave 10,000 'escus' each month, in the hope that he would lengthen his life and that he would bear his case constantly in mind, setting aside all other thoughts." Maître Jacques may have had other patients as ill or even more so; these were all to be dropped, because the royal patient *had the money to pay!* This is a condition of spirit not unknown in our own day with a certain type of mind, witness the following anecdote: One of our very wealthy and very well-known society women was ill with a self-limited disease at one of the very swell hotels in Paris where she was attended by a very fashionable doctor. The whole matter was, as you see, quite an extra-special performance! The disease was running its usual course without incident, but the patient could not understand how such a thing could be, with a person of her importance; this was all well enough for hospital patients, but for *her!* So she finally made the following epic speech to the medical attendant: "but doctor, why do you not give me something to break up this disease and stop it short; you *must* have remedies that will do this, *which I can pay for but which others cannot.*" The more one reflects on that creature's mentality,—and she is a very important person and no fool,—the more astounding does her remark become.

But to return to Maître Jacques, who appears to have been quite a character for the day, and whom we can perhaps look on as the prototype of a kind of physician existing also at the present time, the man who without any particular medical merits retains his patients' allegiance by a process of "bulldozing," if you will pardon the term. During the last five months of Louis' life this artistic confrère extracted from his august charge "fifty thousand écus in hard cash, the bishopric of Amiens for his nephew, as well as other positions and properties for himself and

friends." Now when we consider the difference in the value of money between those days and ours, and if I am correct in estimating the écu at three francs, you must agree with me that for a poor sinful mortal that doctor didn't do so badly by himself and relations! The historian proceeds: "The said doctor was so very rough with him that no one would say to his valet the offensive and rude words that he used; but the King stood so in awe of him that he did not dare to discharge him. The King complained concerning him to those around him, but he would not have ventured to change him as he did all his other servants for the reason that the said doctor used to fling the following taunt impudently in his face: "Je scay bien que ung matin vous m'en envoyrez comme vous faictes d'autres; mais par la . . . (ung grant serment qu'i juroit), vous ne vivrés point huyt jours aprés!" Isn't that simply lovely?

Finally this mighty ruler who had always lived in such awe of death that he had time and again desired his intimates never to speak of it, but, when the time came, to resort to subterfuges, to "go easy," as the expression appears to mean (parlés petitz), had his death warrant flung in his face in the following cavalier fashion. Having observed that the king continued to shut his eyes to facts, in spite of the gravity of his condition, three members of his immediate circle, one of whom was our distinguished confrère Dr. Jacques, decided that the truth must be made known to him, and laid the situation unmistakably before him in the following terms: "Sire, we must fulfil our duty; cease hoping in this holy man (a hermit he had sent for from the far end of Italy) or in anything else, for of a certainty the game is up; on this account make your peace with God, since of remedies there is none." That is what might be called the delicate and finished touch, in the way of breaking bad news, and even the historian's sentiments were outraged, since he remarks: "he had raised these men, suddenly and without grounds, to a condition to which they were not fitted; therefore they did not hesitate to say to such a ruler things that were out of their province, also failing to observe the reverent and humble attitude suited to the case." When this little joint speech had been delivered "each one said a few brief words," to which this impenitent optimist replied: "I have hopes that God will help me, since peradventure *I am not as ill as you suppose!*" Not long subsequently the king expired,—as so commonly happens with people who have particularly apprehended their latter end,—peacefully, without suffering, fitted with the necessary sacraments, and conversing with those about him concerning the arrangements that he wished carried out at his funeral!

Louis XI has led me to such lengths that I shall have to make short work of the other medical details in our author. Charles VIII, his successor, struck his head against a beam in a doorway, and succumbed in nine hours, probably to meningeal hemorrhage. This occurred on the eve of "pasques fleuries," the pretty term for palm Sunday. The account was given to Commynes by the King's confessor who during the preceding week had on two occasions had the King at confession one of them on account of those who came to him for scrofula—as was likewise mentioned in connection with Louis. Commynes goes on to say that the disorder was apoplexy and that the physicians hoped that it would only affect one arm and not carry off the patient. "He was attended by four good physicians but only trusted the craziest of the lot, to whom he accorded so much authority that the others did not dare to speak, although they would gladly have purged him four days previously, as they thought they detected indications of death,—which actually came true." These must have been very far-sighted practitioners indeed.

Another interesting passage in Commynes is that in which he tells of the neurasthenic condition into which fell Charles, the iron duke of Burgundy, after his terrible rout at the hands of the Swiss at the battle of Morat,—and of the treatment of this disorder. He says: "he worked little, and kept to himself, and seemed to do so more from obstinacy than from any other cause, for his grief was so great as to upset his mind, so that he became seriously ill. For whereas his natural temperament and bodily heat were so great that he could not stand wine, but in the morning usually took some "ptizanne" and eat rose-conserve to freshen himself up, this grief changed his disposition in such a way that he had to be put on strong wine undiluted; and in order to get the blood back to the heart, they placed burning tow in dry-cups, and applied them thus heated to the cardiac region." This treatment of such a common trouble as neurasthenia may appeal to some inquiring mind.

In this connection (and also on another occasion) Commynes speaks of the advisability in cases of great adversity of acquiring relief by unburdening the soul to others: "It is of the greatest service to confer with special friends, and not to be afraid to manifest one's distress . . . since this relieves the heart and cheers it up and one's spirits revive." The other instance refers to Louis XI in his illness: "on no occasion did he complain, as do all kinds of persons in trouble, at any rate that is the sort of man *I* am, and I have seen many others act in a similar manner, since to lament is said to relieve suffering.' This is, of course, a well-known fact of current observation.

A visit to the donjon prisons of Loches, where Louis used to keep his particular enemies in safe guardiance, raises some curious medical points. One of the very original features of this institution was that the royal gaoler, not satisfied with shutting his prisoners up in dungeons cut out of the solid rock, in some cases altogether without light, had had constructed solid cages, 8 feet by 8 by 7, out of rectangular bars of oak strengthened by iron inside and out, into which he would pass a victim and then have the cage swung up in the air to a beam. Cardinal de la Balue, for instance, is reported to have spent three years of his long captivity in such a cage; and even Philippe de Commynes relates that under Louis' successor he personally was shut up in one for eight months.

Still other prisoners, besides those kept in ordinary dungeon chambers with no light and air but what could penetrate through one of the slits in the 4-5 metres thick wall, in the cages, and in caves with no light whatever,—were confined by an oak grating in the window-aperture itself; their space, then, would be in the form of a wedge, whose point was the outside window slit, its sides the thickness of the wall, and its base the opening into the dungeon barred by the oak grating. Thus, one very distinguished captive, the Duc d'Alençon, is reported to have passed five years in such a predicament at Loches.

Now the interesting question is this. Those prisoners were mortals like ourselves. They were mentally fulgurated, besides being inadequately clothed and fed. They had no light, little air, and no heat; in particular, the situation of the prisoners in those window-cells must have been trying to the extreme. Yet they seem to have survived it,—in fact Philippe refers to his little experience in terms that are almost jocose. Speaking of the inventor of these cages he says: "Many are those who have cursed him, among them myself, who have 'sampled' one of them for eight months, under the present king." It would appear that the men of those times must have been made of very different stuff from ourselves.

There is one piquant detail, in connection with these dungeons and torture-chambers, that can hardly be omitted. Louis XI was very devout; a man who could act with such ferocity as that was pretty sure to be pious,—*that* could have been told in advance. Under the church up in the fortifications of Loches is a subterranean chapel where he was accustomed to perform his devotions, and in particular he was in the habit of praying there for the souls of the prisoners he was about to submit to torture! From this chapel runs an underground passage that ends,—in the dungeon where de la Balue hung in his bird-cage,

and d'Alençon was enclosed in his icy window-aperture! The King could thus pay them a little private visit, now and then, and gather their personal views as to things in general! These rulers were not styled protectors of the true faith without very just grounds, evidently.

"S."

ITALIAN QUINTUPLETS.

BOSTON, MAY 18, 1914.

Mr. Editor: The newspaper clipping attached hereto gives the information that Rosa Corrada gave birth to five children at one parturition and that all are enjoying the best of health.

Inasmuch as we seldom hear of quintuplets being born, I thought it might be well to report this apparently authentic case.

Yours truly,

GAETANO PRAINO, M.D.

CINQUE FIGLI IN UNA VOLTA.

Palermo, 15.

Un fatto che si assicura non ha alcun riscontro s'è prodotto in questa città. Certa Corrado Rosa, metteva alla luce in un sol parto cinque figliuoli.

Puerpera e neonata godono ottima salute.

SOCIETY NOTICES.

AMERICAN MEDICAL EDITORS' ASSOCIATION.—The American Medical Editors' Association will meet on June 22 at the Marlborough-Blenheim Hotel, Atlantic City, N. J., under the presidency of Dr. E. A. VanderVeer of Albany, N. Y.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The annual meeting will be held in Room 125 of the Copley-Plaza Hotel, Boston, on Tuesday, June 9, 1914, at two o'clock.

Preceding the meeting, the annual lunch will be served in Room 123 at 1.30 o'clock.

Annual reports and election of officers.

The following papers will be read and discussed:—

1. "The Relation of the Industrial Accident Board to the Medical Examiner," Mr. Edward F. McSweeney, Member of the Massachusetts Industrial Accident Board.

2. "Poisoning by Paris Green," Theodore S. Bacon, M.D., Associate Medical Examiner, of Springfield.

3. "The Murder of Captain Charles D. Wyman of the Barge *Glendower*," George Burgess Magrath, M.D., Medical Examiner, of Boston.

OLIVER H. HOWE, M.D.,
Recording Secretary.

Cohasset, May 20, 1914.

APPOINTMENTS.

SYRACUSE UNIVERSITY.—*Dr. Oliver W. H. Mitchell* has been appointed assistant professor of bacteriology.

UNIVERSITY OF MISSOURI.—*Dr. E. R. Clark* has been appointed professor of anatomy, and *Dr. Mazyck P. Ravenel* professor of preventive medicine.

RECENT DEATHS.

DR. CHARLES T. WAINRIGHT, of New York, died from cardiac disease at Englewood, N. J., on May 7. He was a native of Lewis County, Mo., and 56 years of age. Dr. Wainright was graduated from the Missouri Medical College in 1882, and afterwards studied for a considerable time in Europe. In 1889 he received the degree of M.D. from Bellevue Hospital Medical College, New York, also. He was appointed professor of internal medicine at the University Medical College, Kansas City, Mo., and after serving for several years resigned to accept a similar position at the New York Post-Graduate Medical School. For some time before his death he had been incapacitated by ill health.

DR. WILLIAM EDMUND WEBER, of New York, died suddenly on May 7, at the age of 47. He was graduated from the College of Physicians and Surgeons, New York, in 1891, and since 1896 had served in the New York City Health Department. For the past four years he had had charge of the work of the infants' milk stations of the department. Dr. Weber was also attending physician to the out-patient department of the German Hospital.

DR. JOHN ALEXANDER FITZ-HUGH, a Fellow of The Massachusetts Medical Society, died at Amesbury, March 21, 1914, aged 59 years.

DR. THOMAS M. L. CHRYSTIE, of New York, died on May 19, at his country home at Rye, Westchester County. Dr. Chrystie was a lineal descendant of Major James Chrystie of the New York troops in the Continental Army, and was a hereditary member of the Society of the Cincinnati. He was born in 1841 at New Windsor, on the Hudson, where the family had been early settlers. He was graduated from Trinity College, Hartford, in 1863, and served for a time at the Cavalry Corps Hospital of the Army of the Potomac. He was then transferred to the navy, and was acting ensign on the staff of Admiral Farragut until the close of the war. He was graduated from Bellevue Hospital Medical College in 1867, and later became attending surgeon to the New York Orthopedic Dispensary and Hospital. For the past twenty-five years he had been surgeon of the New York State Branch of the Society of the Cincinnati.

DR. DANIEL MORRIS WOOLLEY, of Brooklyn, died from cancer of the liver on May 18. He was a native of Deal Beach, N. J., 64 years of age, and was graduated from the Medical Department of New York University in 1885.

DR. JOSEPH E. A. LANOUETTE, who died of septicemia on May 16, in Manchester, N. H., was born at Champlain, Que., in 1850. He graduated in 1872 from University Bishop College. From 1873 to 1881 he served as a surgeon in the Canadian militia. He was for many years a member of the local board of health.

BOOKS AND PAMPHLETS RECEIVED.

Public Health Reports. Vol. XXVIII, No. 42, October 17, 1913. Containing Information of the Current Prevalence of Disease, the Occurrence of Epidemics, Sanitary Legislation and Related Subjects.

London Public Health Administration, a Summary. By W. McC. Wanklyn. Longmans, Green and Company, London, 1913.

Modern Medicine. By Sir William Osler, M.D., and Thomas McCrae, M.D. Vol. I. Lea and Febiger, 1913.

Surgical Treatment. By Sir W. Watson Cheyne and F. F. Burghard. Lea and Febiger, 1913.

Portraits of Dr. William Harvey. Oxford University Press. London, 1913.

Exophthalmic Goiter Cured by Ligating One Superior Thyroid Artery. By Leigh F. Watson, M.D. Reprint.

Abolishing Pain after Operations with Nerve Block a Distance. By Leigh Watson, M.D. Reprint.

Original Articles.

CANCER OF THE UTERUS.

THE POSSIBILITIES OF CURE BY THE RADICAL ABDOMINAL OPERATION. CERTAIN ORIGINAL METHODS OF OPERATING. INCLUDING AN ANALYSIS OF 367 CASES AT THE MASSACHUSETTS GENERAL HOSPITAL.

By Farrar Cobb, M.D., Boston,

Visiting Surgeon to the Massachusetts General Hospital.

This paper is substantially the same as that read at the clinical meeting of the Staff of the Massachusetts General Hospital, February 20, 1914. The paper should be of value from an educational point of view because,—

(a) It gives a complete analysis, from the standpoint of end results, of all the cases of cancer of the uterus at the Massachusetts General Hospital for fourteen years, from 1900 to 1913 inclusive, 367 in number, of whch 70 were my own personal cases.

(b) It emphasizes the importance of early diagnosis of cancer of the cervix and distinctly shows the possibilities of cure by the extended abdominal (Wertheim) operation, and describes certain original methods of operating which are of importance.

In 1912 I published an article on the same subject,[1] analyzing the hospital cases from 1900 to 1910 inclusive and it is only natural that the present paper should be related to the first in form and substance.

In preparing this article opportunity has been given me to prove previous work and review conclusions in the light of three additional hospital years and my own larger operative experience and to describe in detail some original technical methods which I have developed. Those who have read my previous paper will recognize doubtless certain statements and opinions and for such inevitable repetition I crave indulgence.

It is a plain duty to study our own end results and compare them with those of other workers the world over, and this applies particularly to special workers in different fields; but while our results must be compared with those of the best workmen anywhere, it is not fair to compare the results of a large number of men, some of whom have had no special training or experience, operating intermittently with relatively small material, with the work of one well trained man who has worked continuously with abundant material. This should be considered when we compare our results as a whole with those of Wertheim or with the results of one of our own number who has been given more opportunity and material.

I have been interested in the radical abdominal hysterectomy for cancer of the cervix since 1901 and up to January 1st last have done this operation 29 times, with an immediate mortality of 4 or 13.7%, 25 cases in the hospital and four cases during the last year in my private practice. Two cases have been done too recently to be included in this analysis. Only the hospital cases will be included in this paper. Previous to August 1, 1911, the operations at the hospital were done by many surgeons including myself. Since that date, under the present system of assigning special lines of work to individuals, all the cases of cancer of the uterus have been operated on by me.

By radical operation I mean substantially that done by Wertheim, which, concisely, is the removal of the uterus and a liberal portion of the vagina through a median abdominal incision with thorough dissection of the ureters and bladder and the removal of as much of the parametrium as possible, the regional lymph glands to be removed only if palpably enlarged. It is a difficult and tedious operation and the profession and the public should be made to understand that it should be done only by specially trained men. Surgeons who are jealous of their immediate mortality records should not operate for cancer of the cervix; one must disregard absolutely his surgical reputation, as far as his primary results are concerned, for the sake of curing more patients in the future.

I believe there is urgent need for education on the subject of cancer of the uterus; education of medical students and the medical profession; education of surgeons and of the lay public, and that until a vigorous campaign has been waged for a long time, the majority of women with this disease will continue to be deprived of their proper chance of life, as, beyond question they have been in the years that are past. It is not unusual to hear men of wide surgical experience say that the abdominal operation for cancer of the cervix is unjustifiable, because of the small chance of ultimate cure and the extremely high immediate mortality. In fact, since I began my special work at the hospital in August, 1911, more than one of my distinguished colleagues on the Staff have expressed practically the same opinion. Such teaching is to be condemned; men holding such opinions do not know what has been accomplished. As stated by Dr. William P. Graves in his admirable discussion of my first paper, "It is unquestionably true that the prognosis of cancer of the cervix operated on early by a trained surgeon employing the best technical methods is considerably better as to recurrence than that of an early cancer of the breast operated on under similar circumstances, and the surgical treatment of cancer of the uterus is

par excellence Wertheim's extended abdominal operation."

When you consider that over three-fifths of the patients presenting themselves at the hospital with cancer of the cervix come too late for any attempt at a radical operation, and of those radically operated on by surgeons not specially experienced probably three-fourths will die inside of five years,—and our analysis at this hospital proves this,—it is little wonder that physicians and the laity believe it to be an incurable disease. The two most important questions in relation to this subject are,—

1. How can we teach the public and the medical profession the importance of early diagnosis and the possibility of cure?

2. In what cases is a surgical operation justified?

In the fourteen years from 1900 to 1913 inclusive, 367 cases of cancer of the uterus were admitted to the hospital, including cases of cancer of the cervix and cancer of the body of the uterus. Seventy of these were my personal cases. Cancer of the uterus usually means squamous cell cancer of the cervix. In discussing the radical operation and the late results the cases of cancer of the cervix have been separated from those of the body of the uterus, since cancer of the fundus is a comparatively favorable form for cure by simple hysterectomy, either vaginal or abdominal.

Cancer of the cervix is a disease demanding a radical operation. Wertheim's reported cases are all cancer of the cervix. The important part of my work from an educational point of view relates to this form.

One great lesson from such a large series of cases, the work of many men, is that there is great need of an effective system of completing hospital records, from the standpoint of end results. The difficulties in securing final information in this large number of cases have been great and the hospital records, with the exception of the last few years, have furnished practically no help. I cannot help feeling a certain amount of satisfaction at the result of our labors in that out of 103 cases surviving the operations of hysterectomy of all kinds 93, or all but 10, have been traced. I have not lost track of any of my own cases.

Wertheim's latest report covers a period of fifteen years from 1898 to 1912. His work during this period should be compared with our hospital results from 1900 to 1913, fourteen years. Of our 367 cases:—

4 refused operation.
57 were considered inoperable.
173 had a palliative operation, either amputation, or curetting and cauterization, with or without ligation of the internal iliac arteries, (this last procedure only being done since I began this special work.)
17 vaginal hysterectomies.
116 abdominal hysterectomies.

At the end of my paper I will give a tabulated review of the statistics of the cases in detail.

230 cases came too late for a radical operation, an operability of only 36.2%. According to Wertheim's latest statistics 50% of his cases were operable. From 1898 to 1912 he examined 1430 cases.

71 refused operation.
684 were inoperable.
675 had a radical operation done.

The appalling lack of operability is due to popular ignorance as to the nature of the disease and its hideously insidious onset, and also to the neglect of medical practitioners to examine the cases or to recognize the importance of the conditions found on examination, and also, and this applies especially in this country, to the lack of knowledge on the part of surgeons as to what is an operable case. The operability at this hospital is about the same as at other hospitals in this country.

Since August 1, 1911, I have had personally 50 cases of which 5 were inoperable; 23 had palliative operations, including eight cases in which the iliac arteries were tied; radical abdominal hysterectomy was done in 22 cases, an operability of 40.4%, too small a number of cases and too small an increase in operability to justify any conclusions as to the value of our specializing in educating the community. It should be realized that for years in Germany a publicity campaign to educate the laity has been carried on and it is gratifying to note that something is beginning to be done in this country in this direction. Until we can teach convincingly that irregular bleeding at any time in a woman's life may mean cancer, and always demands investigation by a competent man, we will continue to have an appalling list of hopeless cases and avoidable deaths. Every medical society in every city and town should be aroused to the serious need of such education and the importance of a thorough examination.

EARLY SYMPTOMS.

Our series of cases simply corroborates what is already known, that the commonest early symptom is irregular bleeding; that pain is a late symptom, but our statistics in regard to the first symptoms and the duration of symptoms are of small value because of inaccurate observation on the part of patients and the failure to make careful notes in the majority of the records. In the 230 inoperable and palliative cases the average duration of symptoms before the patient came to the hospital was about one year. Undoubtedly cancer of the cervix may be present for many months before any symptoms are noted. It may go to an inoperable stage with practically no symptoms and still such cases live for years. One case came to the hospital three weeks after the first

symptoms were noted and was thought to have inoperable disease and yet lived for four years and eight months. The average duration of life in the cases that were not operated on at all was between seven and eight months, whereas the average duration of life in the palliated cases was thirteen months. It is interesting to note here that one case of adeno-carcinoma of the cervix is alive and well without recurrence at the end of eleven years after a palliative operation; *i. e.*, amputation with the cautery.

I make here a plea for those unfortunate patients who come too late for radical operation. I think it is our duty in every case where a radical operation is inadvisable to make determined and repeated efforts toward the prolongation of life and relief of pain and hemorrhage. I feel sure that all too frequently the operable cases here and elsewhere are neglected and allowed to die without much of anything being attempted for their relief. We are all familiar with the value of thorough curetting. It should be remembered that curettage without the use of the cautery is unwise and that the cautery itself probably has a positive influence in checking cancer growth much deeper than the surface actually cauterized. In other words, there is hardly any doubt that the developmental activity of the cancer cells can be arrested and permanently destroyed at a distance far remote from the surface upon which the cautery is used. Recently Dr. James F. Percy, Galesbury, Ill.,[2] has exploited at medical meetings and in journals his exaggerated use of the cautery in inoperable cases. He uses a water-cooled vaginal speculum, puts a thermometer in the bladder and opens the abdomen so that he can detect a dangerous amount of heat. His statistics are not convincing and we must wait a number of years before passing comparative judgment upon his method of the use of the cautery.

Between cauterizations much good can be done by local applications, either of acetone or formalin. The value of radium emanations is uncertain, but in cases in which this treatment can be obtained it should be tried, not neglecting general treatment, bromide of arsenic and tincture of iodine, and the judicious use of opium, in accordance with the principles laid down by Dr. George W. Gay.[3]

I have in eight cases supplemented the curetting and cauterization by opening the abdomen and ligating both internal iliac arteries. I first thought this procedure was an original one with me, but have found out since that it originated with Charles Ryall, Surgeon to the Bollingbrooke Hospital and the Cancer Hospital of Bromptom, England.[4] He reports over twenty cases of ligation with decided benefit and no complications. There has been no immediate mortality in my eight cases and in certain of them I have been much impressed by the almost instant relief from pain and hemorrhage. Patients that before operation have required morphine in fairly good sized doses have needed none the day after. The operation is one that can be done rapidly and safely even in obese patients. The abdomen is opened by a median incision, both ovarian and both internal iliac arteries tied with silk and the abdominal wound closed without drainage. Obviously, the theory of this method is to shut off the blood supply to the uterus and by starving the malignant growth diminish pain and hemorrhage. The two of my cases that most strongly illustrate the value of this procedure are:

Case 1. Hattie A., Hospital No. 182694.

This case illustrates *also* what, in my opinion, is a wrong way to deal with cancer of the cervix. She entered the hospital first in May, 1911. An assistant surgeon curetted and cauterized the growth and the patient was discharged with the advice to return in a month for radical operation. In my opinion, the radical operation was indicated at this time, and should have been done within a week or two after the cauterization, if not immediately following. The case teaches us that women should not be allowed to go out of the hospital without a radical operation. This patient got so much relief from the curetting and felt so well that she did not return until May, 1912, one year after her preliminary curettage; too late. She had had almost constant flowing for three months and much pain in the right lower abdomen, travelling down the right leg. An abdominal incision revealed marked involvement of the parametrium on both sides and extension of the growth into the broad ligament, most marked on the right, where a loop of the small intestine was adherent to the disease. This was not freed. The internal iliac arteries were tied with silk. Hemorrhage ceased at once and the pain practically disappeared. She left the hospital in very good condition June 1, 1912. I saw her at intervals of a month at the hospital and at her home in East Cambridge. She had no return of the hemorrhages and remained quite free from pain until six months before her death, which took place Oct. 9, 1913, a year and four months after ligation, a case that could have been radically operated on when it first came into the hospital. Final symptoms were markedly relieved by ligation.

Case 2. Annie S. Hospital No. 185890.

Carcinoma of the cervix and extensive pelvic metastases following palliative operation fifteen months before in another city. Very severe pain for weeks, requiring large doses of morphia. In November, 1912, I ligated both internal iliac arteries. She had immediate relief from pain and required practically no opiates after operation. Before operation large doses were repeated during the day. Required no opiates the last week of her stay in the hospital. The patient is still living, but at present in very poor condition.

WHAT IS AN OPERABLE CASE?

Two hundred and thirty cases of the hospital series were pronounced unfit for radical operation, but this represented the opinions of many different surgeons. It

is probable that some of the cases regarded by some of the men as beyond surgical aid, might have been considered by others as fair risks. The fact that of the 317 cases before August, 1911, only nine were given the advantage of an exploratory laparotomy proves to me that in many a true decision could not have been made. If the entire pelvis is filled with a hard mass, the uterus fixed and the vagina markedly involved, there is no doubt but that such a case is inoperable, but in many cases no bimanual examination, with or without an anaesthetic, can determine positively that the case is not one for radical treatment, because fixation of the uterus and indurated masses in one or both broad ligaments are not infrequently due to inflammatory tissue, adhesions, pus tubes or cysts. Even if fixation and induration in the broad ligaments is due to cancer, such cases should have the advantage of exploratory laparotomy because it is certain some of the apparently desperate cases, even those involving the bladder, can be cured. Of Wertheim's cured cases there were no less than ten that had been considered inoperable by very worthy men. In nine others the wall of the rectum was involved and in six others the bladder was so fixed that its loosening was very difficult. In several others the parametrium was so widely infiltrated that in separating it from the pelvic wall it gave the operator the impression that he was cutting through cancerous tissue. One of my own cases that had lived the longest free from recurrence; namely, thirteen years, was a case in which the left ureter had to be dug out of a mass of apparent disease and in which the iliac glands on both sides were markedly enlarged and were removed. This is the case of Elizabeth C., W. S., vol. 369, page 120. In her case there was marked thickening and induration in the left broad ligament noted before operation, and one case, in which the uterus was fixed and both broad ligaments indurated, is alive and well over five years. I have operated on three cases operated on palliatively by other men. In each case I found it possible to do a radical operation; in two of them the bladder was opened and successfully repaired. One died of recurrence, one year, eight months and nine days afterwards; the other two are cured. Therefore, in the face of such evidence as Wertheim's and my own limited experience, I believe that there are a number of cases in which none of us have the right to decide in regard to the possibility of a radical operation until the abdomen has been opened. The borderline cases will be the most difficult, possibly involving injuries or resection of the bladder and ureters, but without operation death is certain, suffering extreme, and we know that with it a definite number of cases are cured. Cystoscopy may give some evidence in regard to the extension of the growth to the vesico-cervical septum. If there is a prominence of the trigone, it is an indication that this area is involved, but even if the cystoscope should show probable invasion of the septum, it would not be positive proof and a radical operation even then, with resection of the bladder, might not be impossible. If on exploring a case it is found unfit for a radical operation, the valuable palliative operation of tying the iliac arteries can be quickly done.

The general condition of the patient must be considered carefully in deciding upon the operation and a long, tedious and frequently bloody abdominal operation should never be attempted in feeble subjects; it is contra-indicated, also, in the presence of marked adiposity. In such cases vaginal hysterectomy should be substituted. In certain of the adipose cases it may be possible to do a para-vaginal or radical vaginal hysterectomy, the operation of Schuehardt and Schauta, as will be described in detail later. My experience has convinced me that the Wertheim operation in very fat women is one of extreme difficulty and great risk to life, and in the future I will avoid the operation as much as possible in such cases and intend to do the extended vaginal operation. One of my fatal cases was that of a very fat woman in whom a vaginal hysterectomy was impossible on account of the inability to pull down the uterus because of firm intra-abdominal adhesions subsequent to a previous laparotomy. Death resulted from general peritonitis. During the time Wertheim was doing 500 abdominal operations he performed vaginal hysterectomy only 21 times, in 5 cases for high-grade adiposity, in 11 cases because of cardio-renal disease, in 5 cases of very early cancer diagnosed only by the microscope.

CARE IN PATHOLOGICAL EXAMINATIONS.

Unless great care is used, pathological examinations of tissue from the suspected cervix may be in error. The most favorable cases for cure are those in which the diagnosis of cancer is made early by the microscope. Possible sources of error are depending upon curetting without excising pieces, failure to obtain tissue from the diseased area, and incomplete study of the tissues after removal, also the mixing up of specimens in a laboratory which is burdened with much work. In suspicious cases wedge-shaped pieces should be cut from more than one place, should involve the area of granulation tissue under suspicion and the normal mucosa adjoining. Many sections should be cut and examined with care. Great pains should be taken to prevent the mixing up of specimens with those from any other case. As an illustration of the possibility of error, there were three cases in our series in which no operation was done because the pathological reports were in one case "blood clot," in two "simple glandular hypertrophy."

These three cases died of typical cancer of the cervix clinically. In one of my cases it is certain that the specimen was interchanged with that from another case in the laboratory.

I have done two cases in which the pathological report was non-malignant after operation, one case was a sloughing fibroid and the other arterio-sclerosis. These cases both recovered, but have not been included in my series of radical operations for cancer of the cervix. In the operation for sloughing fibroid the bladder was badly torn and a large vesico-vaginal fistula persisted for many weeks; finally I was able to close this.

IMMEDIATE MORTALITY AND RESULTS.

Since writing my earlier paper nearly two years ago, I have had opportunity to trace cases then classed as untraced and to prove and correct my statistics. Before analyzing our own cases I will give you Wertheim's latest report on his percentage of cures by the abdominal method. By his report of November, 1912, he had done the radical operation 675 times, 380 were done over five years previous to the report, and of this number 160 cases were cured, over 42%. His immediate mortality in the first ten cases was 30%, and in his last 175 only 9%, a most striking illustration of the possibility of improving one's technique and results by practice.

VAGINAL HYSTERECTOMIES.

In our series there were 17 vaginal hysterectomies, 13 for cancer of the cervix and 4 for cancer of the fundus. The immediate mortality was zero. 14 operations were done over five years ago, and of these 8 were traced. 2 cases were cured, both of them cancer of the cervix, 25% of cures in the vaginal operation for cancer of the cervix. Since 1910 there were 3 cases, all of which are free from recurrence from one to three years, 2 cancer of the cervix and 1 cancer of the fundus. It is interesting to note that there were no cures in cases of cancer of the fundus, which is supposed to be but slightly malignant and for which the operation of vaginal hysterectomy is justifiable.

I believe it is true that the simple vaginal hysterectomy in the hands of numerous men who have had no special training or experience will be the safest method and give a greater percentage of cures than the radical abdominal method in the *same hands*, but I believe most earnestly that cancer of the cervix should be operated on only by men specially educated and trained. After the studied results of special operators in this and other countries and our own cases, as shown here tonight, it must be admitted that simple vaginal hysterectomy can have no place as the operation of choice for cancer of the cervix except in very fat subjects and in those cases where it is wise to do a rapid and comparatively safe operation because of the poor condition of the patient and possibly in a small number of cases of very early microscopic diagnosis. No operator with large experience has been able to report over 10% of cures.

We should, however, compare the radical vaginal or paravaginal operation of Schuchardt and Schauta with the radical operation of Wertheim. Briefly, it is an operation in which the vaginal wall and labia on the left and all the para-vaginal and para-rectal tissues are split to the sacrum laying wide open the perineum. By this procedure it is possible to remove a generous portion of the vagina and some of the parametrial tissue, but it is said to be difficult and bloody and undetected injuries of the bladder, rectum and ureters are common. The danger of implantation metastasis is greater and the lymph glands cannot be reached. Its immediate mortality is almost as high as Wertheim's and the percentage of cures not so large; convalescence is often complicated by tedious suppuration and sinus formation.

ABDOMINAL HYSTERECTOMIES FOR CANCER OF THE FUNDUS.

There were in our series 27 cases in which seven cases were my personal operations. The immediate mortality was 4 or 14.8%. Of the surviving 23 cases I have traced 22, of which 14 were operated on over five years before. Six of these cases are cured, or 42.8%. In addition, one case is free from recurrence 4½ years and one 3¼ years. In my personal cases, 7 in all, I have had no immediate mortality and but one death from recurrence; this case was far advanced and in very weak condition when I operated and the disease had extended to the peritoneal surface of the body of the uterus.

It is a matter of surprise to me that the percentage of cures of carcinoma of the fundus, both by the vaginal and abdominal route is so low. Dr. Graves in his discussion of my previous paper stated that the figure for non-recurrence should be as high as 90%, while the primary surgical mortality should be practically nothing. The only explanation of our immediate mortality, 14.8% by the abdominal method with only 42.8% cured cases, is the fact that a few of the cases came to operation in an advanced stage of the disease in poor condition. A case of this sort is my case, Zenia C., No. 190040, who died with recurrence in the liver four months and nine days after operation.

ABDOMINAL HYSTERECTOMIES FOR CANCER OF THE CERVIX.

Total number 89; squamous cell 87 and adenocarcinoma 2. I have divided the abdominal hysterectomies into two groups, the simple, not radical, operations, 49 in all, and the radical,

40 in number. By simple hysterectomy I mean the removal of the uterus with no extraordinary attempt to dissect the ureters and remove the parametrium widely. Radical hysterectomy is substantially Wertheim's operation.

Of the 49 simple hysterectomies there was the excessive immediate mortality of 17, or 34.6%. Of the surviving 32 cases I have been able to trace 29. Of these 26 were operated on over five years ago, cured only 5, or 19+%. In addition, two cases are free from recurrence from three to four and a half years. Of the 40 radical hysterectomies there was an immediate mortality of 9, or 22.5%. Of the surviving 31 cases I have traced all the 31, of these 14 were operated on over five years ago and 7, or 50% are cured.

Of the 40 radical hysterectomies 23 were done by myself. Of the 17 cases not done by myself all were traced, the immediate mortality was 5, or 29%. Of the 12 surviving cases, 8 were operated on over five years ago. One case is cured, 12½%. In addition, two cases are alive and free from recurrence over three years. Of my own 23 hospital cases, the immediate mortality was 4, or 17+%. Six cases were done over five years ago, 5 are cured. In the cases since August 1, 1911, 17 in number, I have so far four recurrences; three cases are free from recurrence from one to two years. The cause of death in the abdominal hysterectomies in the majority of cases was septic peritonitis; shock was the next most frequent cause.

In reviewing the hysterectomies certain features are worthy of special note. Simple vaginal hysterectomy was the safest in the hands of a large number of operators and gave a larger percentage of cures than simple abdominal hysterectomy by numerous surgeons. The simple abdominal hysterectomy, with an immediate mortality of over 34%, proved to be an extraordinarily dangerous method in the hands of various surgeons and its percentage of cures is very small, not sufficient to justify its employment as an operation having any advantage over vaginal hysterectomy. Cases in which the bladder, rectum or ureter were injured were far more common in this set of cases than in the radical operations. We are led to conclude that the abdominal operation which makes no attempt to dissect the ureters and remove the parametrium, to say nothing of the glands, cannot be advocated as a safe or reasonable operation for cancer of the cervix, because such an operation exposes the patient to increased danger from shock, hemorrhage and peritonitis without making any more effective removal of the disease and its lymphatics, than in a simple vaginal hysterectomy.

The 40 radical hysterectomies including my own cases show an immediate mortality of 22½%. The cures were 50%, a showing which speaks for itself as satisfactory. The lower mortality and increased percentage of cures by the radical method can be explained by the fact that these operations were attempted only by two or three men specially interested and educated, whereas, the majority of the simple hysterectomies were done by many surgeons, most of whom, in all probability, had made no special study of the technique of the subject, or, chose the abdominal route as a method with which they were more familiar.

The important factors in the operation are:

1. The preliminary preparation.
2. The anaesthetic with special reference to the prevention of shock.
3. The abdominal incision.
4. The freeing and handling of the ureters.
5. Removal of the parametrium and glands.
6. Control of hemorrhage.
7. Prevention of peritoneal infection and implantation metastasis from the growth itself.
8. Drainage and after treatment.

I gradually have adopted some original technique by which I think the operation is made even more radical and perhaps somewhat safer. I refer specially to the combined method of spinal and general anaesthesia, the abdominal incision, the retraction and elevation of the ureters by tapes and the ligation of both internal iliac arteries.

PRELIMINARY PREPARATION OF THE PATIENT.

Under this heading is to be considered the general preparation of the patient, the getting her into the best possible condition for the operation, and also the preliminary preparation of the vagina. Special attention should be paid to the condition of the heart and kidneys; the functional renal test should be done with care more than once. A percentage of 25 prohibits the radical operation. It has been surprising to me to see how much certain cases have improved in ten days or two weeks by rest in bed, forced fluids and liberal diet with a moderate amount of stimulation. This had been especially so in a number of cases of adeno-carcinoma of the body of the uterus; women quite advanced in years, cases which on entering the hospital seemed to be inoperable because of the irregular pulse and feeble condition, and upon which a successful hysterectomy was done.

I wish to say here that the combined method of spinal and ether anaesthesia has enabled me to safely operate on a number of cases which previously I should not have operated upon, or, if at all, under the feeling that death would almost certainly result. I will take up this method of anaesthesia in detail later on. More so than in any other pelvic operation, the presence of distended coils of intestines will seriously interfere with the technique. At least two days of light diet and catharsis are needed.

It is impossible to make any hard and fast rule in regard to the preparation of the vagina. Wertheim usually curettes and cauterizes the

growth on or about the cervix immediately before beginning anaesthesia for the abdominal operation. He does this usually without anaesthesia, and claims that the patients suffer little pain. This is hard to believe. The difficulty of getting sufficient relaxation without anaesthesia, to say nothing of the psychic shock to a woman facing such an ordeal, would contraindicate any such proceeding. I have come to believe that in the majority of cases it is best to do the curetting and cauterizing, if it is necessary, and the disinfection of the vagina as the first step of one operation, and to do it under combined anaesthesia, and, as I will mention in discussing anaesthesia, the vaginal part can be begun immediately after the first injection has been made, while the ether is being started.

I have found that curetting and cauterization as a distinct preliminary operation a week or ten days before the abdominal operation is apt to create a much more foul and septic condition about the cervix because of the large migration of bacteria into the freshly infiltrated areas, and also, I believe that the formation of scar tissue in the cauterized areas where the cervical growth has been large will tend to make the intra-pelvic freeing of the bladder and the rectum much more difficult. In cases where the cervical growth is small and confined to the cervix, where I am sure that I can at the later stage of the abdominal operation go far down the vaginal walls with the right angled clamp, I do not curette or cauterize, simply disinfect the vagina as described below. The cases of extensive proliferative growth are curetted and cauterized, after which the vagina is disinfected. The only cases in which I think it best to do curetting and cauterization as a distinct operation a week or two in advance, are the cases that are in bad condition because of excessive hemorrhage, and cases which are flowing profusely on entering the hospital. In such it is wise to thoroughly curette and fire locally and wait a sufficient length of time to get the patient strong enough for the abdominal work.

To disinfect the vagina, whether or not the curette and cautery have been used, I use the following method. The preliminary preparation is always done by myself. After scrubbing with green soap and water, and using a 1-2000 corrosive douche freely, the scrubbing and corrosive douche being done before the use of the curette and cautery, I fill the vagina with tincture of iodine and allow it to remain two minutes. After wiping this out with gauze sponges the vagina is filled with alcohol, pains being taken afterwards to wash out all the alcohol with bichloride solution 1-2000. A small gauze sponge is tucked lightly for a short distance in the vagina as the final step, no attempt being made to demark the cervix or to attach any instrument to the posterior vaginal vault.

ANAESTHESIA.

The time necessary to do an operation of this magnitude will be from one to four hours. My quickest operation, in which I did not remove the iliac glands, required one hour and fifty minutes. My difficult cases have taken from two and a half to three and a half hours. It goes without saying that much pains should be taken to shorten the time in every way and that the choice of anaesthesia and the anaesthetist is of the greatest importance. The chief cause of death following this operation are shock and septic peritonitis.

Spinal anaesthesia has been done in 33 cases by Wertheim, either with stovain or tropacocaine. In general the duration of the anaesthesia possible by the spinal method alone is too short for the performance of this operation, and the necessity of using a large amount of the interspinal fluid in combination with the Trendelenberg position tends to make this method of anaesthesia dangerous. In addition, I believe it to be very important to have the patients, who almost always are in fear of the operation, unconscious and oblivious to the manipulation and surroundings.

Ether has been accepted as the best anaesthetic. In my paper published a year and a half ago I said it was the only anaesthesia to be considered. I still think so,

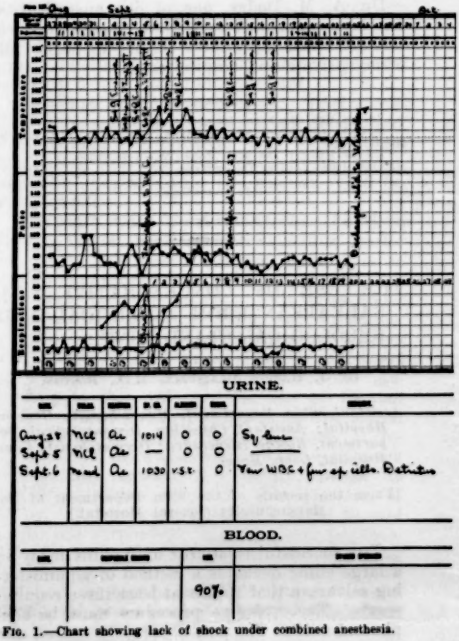


Fig. 1.—Chart showing lack of shock under combined anesthesia.

but I have found in the last eleven months that by using spinal injection and ether in combination that not only have I had no shock at all or anything approaching it, in most of the cases, but the patients have been free, in a most surprising degree, from the alarming sequelae and complications of convalescence that all too often cropped up in the cases leaving the operating table in moderate or severe shock after a long etherization. This spinal injection is used as a "nerve bloc" on the anoci principle, or nerve blocking theory advanced by Crile; the idea being to shut off the nerve irritation from the extensive manipulation in the pelvis from the higher centres by using a moderate dosage of stovain or tropacocaine and in addition to secure unconsciousness and prolonged anaesthesia; ether is begun at once after the spinal injection and continued to the end of the operation. Figure 1 is a copy of the chart of one of the hospital cases illustrating the entire absence of shock in the pulse curve and the very satisfactory convalescence in these cases.

As I have said, the preparation of the vagina can be undertaken almost immediately. Half an hour before the anaesthesia, morphine gr. ¼ with atropine gr. 1-120 is given hypodermically. The spinal injection is from 1 to 2 c.c. of tropacocaine, 5% with suprarenin. (The 5% tropacocaine-suprarenin Lösnug made by G. Pohl of Germany.) This is given usually between the second and third lumbar vertebrae.

Dr. A. M. Dodge, one of our anaesthetists has been interested and kind enough to give this combined anaesthesia for me in nearly all of my private and hospital cases.

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(To be continued.)

THE USE OF CONCENTRATED NEOSALVARSAN FROM A CLINICAL AND SEROLOGICAL STANDPOINT.

BY J. HARPER BLAISDELL, M.D., BOSTON,

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[From the records of the Skin Department of the Massachusetts General Hospital.]

THE successful treatment of syphilis today in a large clinic demands a method of administering salvarsan that fulfills at least three requirements. The operative procedure must be simple and swift. The patient must be spared any immediate or permanent sequelae of a disabling nature. The disease must be checked as effectively by this as by any known method.

The use of concentrated neosalvarsan satisfies the requirements of simplicity, swiftness and freedom from objectionable after-effects as no other method has done. Therapeutiely, its true place can be settled only after the accumulation of much more data than is available at present.

After experimentation with mechanical holders and tubing devices the method of administration of concentrated neosalvarsan in the Skin Out-Patient Department of the Massachusetts General Hospital settled on the following simple procedure which has been successfully used without exception over three hundred times.

All the injections of the morning are mixed in one bottle which may be kept tightly corked. 20 c.c. of freshly distilled sterile water are allowed to each dose and that amount is poured into a small graduate. A straight needle with a Swift holder is introduced into the vein and as soon as the blood returns freely through the needle, the syringe is filled, quickly adjusted to the needle and its contents injected. The time consumed in the actual injection of the solution is about thirty seconds. All the operating is done under the strictest aseptic precautions. With the aid of one assistant or nurse to get the patients prepared, in position on the operating table and tourniquetted, a dozen injections have been given in less than an hour without undue haste.

This procedure, although simple in description and in operation, may present several points of difficulty to the novice in this method of injection. When the syringe is full, it is advisable to grasp the barrel well toward the upper end in order that the little finger may rest firmly on the plunger. Otherwise, if only the barrel is held and the syringe is tilted in the transfer from the graduate to the needle the weight of the plunger forces the fluid out at the end or if the position is reversed the plunger falls out entirely.

Another point to be borne in mind is that the syringe must invariably be adjusted to the needle and not the needle to the syringe. This is the most difficult part of the technique and the source of the greatest trouble in the whole operation. The syringe and needle combined represent the long arm of a tremendously powerful lever in comparison to the very short arm represented by the length of the needle within the lumen of the vessel. For instance, in the average injection the length of the needle in the tissue is about half an inch and the length of the rest of the needle and the filled 20 c.c. syringe is about ten inches. The firm skin at the point of injection acts as an excellent fulcrum. In as much as pressure applied at the long end of a lever increases in direct proportion to the length of the short arm it will

be seen that an eight ounce pressure on the syringe increases to a ten pound pressure at the end of the needle within the vein. This physical law explains in large measure the rupture or leaking of blood-vessels after the needle has apparently been successfully introduced. A steady hand to hold the apparatus as motionless as possible is an important requisite for the successful use of this method.

The concentrated neosalvarsan injection is splendidly adapted for use in the office or out-patient clinics where it is of primal importance that sequelae shall not interfere with the patients' unassisted return home or to work without considerable loss of time. In three hundred and forty-one (341) injections done in the Skin Out-Patient Department from November 10, 1913 to January 17, 1914 no patient found it necessary to recuperate in the recovery rooms because of untoward symptoms. As for illness for the twenty-four hours following injections, it was the exception for the patient to make any comment on the next visit about unpleasant sequelae. In the majority of cases it took searching questions by the phyician to bring to light symptoms that might be classed as after effects of the medicine. Dizziness, headaches, and diarrhea were commonly recorded, their occurrence being most frequent following the initial injection and in those patients where nerves and alcohol played a leading role. The evidence showed conclusively that the danger of unpleasant or dangerous sequelae when the injection is given by an experienced operator and under aseptic conditions is reduced to a minimum.

Broadly speaking, the success or failure of any method of medication depends upon its lasting therapeutic efficiency, irrespective of the facility it may be given by the physician or received by the patient. This test the concentrated neosalvarsan has yet to undergo and the results must be conclusively in its favor if it is properly to displace the original Ehrlich product, the worth of which is established in fairly definite lines.

Symptomaticly, the concentrated neosalvarsan is as active as any of its predecessors. Primaries disappear, rashes fade, mucous patches heal, headaches cease, and gummata resolve as rapidly as with the old salvarsan. It is only when the serological results are considered that doubts about its comparative value begin to arise.

In order to get a more definite notion of the serological side of the question it was proposed to take as many fresh untreated syphilitic cases as possible within certain time limits, give a series of four injections of concentrated neosalvarsan of a 0.45 gram dosage to each at weekly intervals and follow this by a Wassermann test one week after the last injection. Out of a series of sixty-two (62) cases, carefully selected and instructed as to the importance both to themselves and to their physician of carrying out instructions, only twenty-four (24) fulfilled the simple requirements of this five weeks course of treatment. The Wassermann tests in all instances were done with two antigens, the beef heart extract and the new cholesterinized heart extract. The details of the series of cases were as follows:

For practical consideration this series can be divided into three fairly distinct groups,—ten cases of early syphilis, four cases of late secondary manifestations, and ten cases of late syphilis. It is to be regretted that Wassermann tests were not done on all cases before treatment but it seems fair to assume that as the positive diagnosis of syphilis was made the Wassermann would be as strong before treatment as after.

Group I. Ten cases. *Cholesterinized antigen.* One stronger after treatment than before. Eight unchanged or strongly positive after treatment. One changed from strongly positive to weakly positive. *Beef heart antigen.* Five became less strong after treatment. Five became negative.

Group II. Four cases. *Cholesterinized antigen.* One remained strongly positive. Three became less positive. *Beef heart antigen.* One remained weakly positive. Three became negative.

Group III. Ten cases. *Cholesterinized antigen.* Nine remained strongly positive after treatment. The one that became negative was only weakly positive in a congenital case before treatment. *Beef heart antigen.* Seven remained strongly positive. One became moderatively positive from strongly positive. One became negative from weakly positive. One was negative before and after treatment.

Summary. Twenty-four cases. *Cholesterinized antigen.* Nineteen remained unchanged. Four became less positive. One became negative. *Beef heart antigen.* Seven remained unchanged. Seven became less positive. Ten became negative.

The exact status of the cholesterinized antigen in the Wassermann reaction is still a matter of debate but most observers agree that in known syphilities at least, the test is more delicate than the older methods. This series would support that theory. With one exception, (Group 1, case 1), the cholesterinized antigen was equally or more strong than the beef heart antigen tests before and after treatment. According to this test only one out of the ten early cases of Group 1 changed for the better. The milder secondary cases in Group II responded in a more satisfactory manner although the number treated was hardly enough to justify a positive statement. The late cases of Group III, where the spirochetes might be said to be well entrenched, failed to show improvement in again nine out of ten cases. Keeping in mind the fact of the much less senative action of the beef heart antigen the end results of that test show a proportionately unsatisfactory condition of the blood picture. Thus it would

GROUP I.

Case.	Sex.	Age.	Duration.	Previous Symptoms.	Present Symptoms.	Previous Treatment.	Before Treatment.		After Treatment.	
							Choles. Antigen.	Beef Heart. Antigen.	Choles. Antigen.	Beef Heart. Antigen.
1.	M.	30	2 mos.	—	Penile primary No secondaries	None	Neg.	St. pos.	Wk. pos.	Mod. pos.
2.	M.	34	3 wks.	—	Penile primary No secondaries	None	St. pos.	St. pos.	St. pos.	Wk. pos.
3.	M.	29	3 wks.	—	Primary lower lip Sub-maxillary glands	None	St. pos.	Mod. pos.	St. pos.	Wk. pos.
4.	M.	24	3 mos.	—	Penile primary Secondaries	None	—	—	St. pos.	Neg.
5.	F.	16	3 mos.	—	Genital primary Secondaries	None	—	—	St. pos.	Wk. pos
6.	M.	38	2 mos.	—	Penile primary Secondaries	None	—	—	St. pos.	Neg.
7.	M.	23	5 mos.	—	Primary scar Secondaries	None	St. pos.	Wk. pos.	St. pos.	Neg.
8.	M.	26	3 mos.	—	Penile primary Secondaries	None	St. pos.	St. pos.	St. pos.	Mod. pos.
9.	M.	24	2 mos.	—	Primary scar Secondaries	None	St. pos.	St. pos.	Wk. pos.	Neg.
10.	M.	29	3 mos	—	Primary scar Secondaries	None	—	—	St. pos.	Neg.

GROUP II.

1.	F.	20	3 yrs.	Rash Sore throat	Late papules Condylomata	None	—	—	Mod. pos.	Wk. pos.
2.	M.	46	4 yrs.	Penile primary Secondaries	Tongue, thick denuded and fissured.	Pills for one year	—	—	St. pos.	Neg.
3.	F.	35	3 yrs.	Primary Secondaries	Late papules Annular lesions on forehead	None	St. pos.	St. pos.	Mod. pos.	Neg.
4.	M.	34	3 yrs.	Primary Secondaries	Annular lesions on forehead	Sev. mos.	—	—	Mod. pos.	Neg.

GROUP III.

Case.	Sex.	Age.	Duration.	Previous Symptoms.	Present Symptoms.	Previous Treatment.	Before Treatment.		After Treatment.	
							Choles. Antigen.	Beef Heart. Antigen.	Choles. Antigen.	Beef Heart. Antigen.
1.	M.	41	18 yrs.	Syphilis in Italy	Pain in joints Cough	None	St. pos.	St. pos.	St. pos.	St. pos.
2.	M.	40	11 yrs.	Primary Secondaries	Ulcers in nose	Few mos.	St. pos.	St. pos.	St. pos.	St. pos.
3.	F.	24	Cong.	—	Swelling and pain in right ankle	Much T. B. treatment	Wk. pos.	Wk. pos.	Neg.	Neg.
4.	M.	35	13 yrs.	Primary Secondaries	Ulcer of left ary-epiglottic folds	Six mos.	St. pos.	St. pos.	St. pos.	St. pos.
5.	M.	27	10 yrs.	Primary	Gumma of testicle	None	St. pos.	St. pos.	St. pos.	St. pos.
6.	F.	21	—	—	Gumma of sternum	None	St. pos.	St. pos.	St. pos.	St. pos.
7.	F.	28	—	—	Perforations of soft palate Four mos. pregnant.	None	St. pos.	St. pos.	St. pos.	St. pos.
8.	M.	30	—	Denied all syphilis	Husband of syph. woman	None	St. pos.	St. pos.	St. pos.	Mod. pos.
9.	M.	43.	20 yrs.	Primary Secondaries	Ulcer of right nostril following operation	Pills for two years	St. pos.	St. pos.	St. pos.	St. pos.
10.	M.	32	—	—	Leucoplakia	None	St. pos.	Neg.	St. pos.	Neg.

seem that the neosalvarsan has the least effect in those cases where a maximum efficiency is most desired. Viewing the therapeutic action of the concentrated neosalvarsan from the serological standpoint it would seem the part of well thinking conservatism to regard it as a remedy giving excellent temporary aid rather than the more lasting effects of the old salvarsan.

SUMMARY.

I. *Technique.*

1. Intravenous injection of 20 c.c. of fluid with glass syringe, needle and Swift holder most simple method.
2. A steady hand and careful adjustment of syringe to needle necessary.
3. The time of actual injection averaged thirty seconds.

II. *Sequelae.*

1. Three hundred and forty-one injections given.
2. No patient required the use of the recovery rooms because of untoward sequelae.
3. Dizziness, headaches, and diarrhea in mild degree recorded in some instances during the first twenty-four hours especially after the first injection.
4. Experienced operator and strict aseptic technique render danger negligible.

III. *Therapeutic Efficiency.*

1. Twenty-four untreated cases were given four injections of concentrated neosalvarsan, dosage 0.45 gram at weekly intervals followed by a Wassermann seven days later.
2. Active symptoms and lesions yielded readily.
3. The Wassermann reaction was little changed.
4. Active early cases or long standing cases showed the least serological change.
5. Serologically, the concentrated neosalvarsan was inferior to the old salvarsan.

CANCER OF THE TONGUE BASED UPON THE STUDY OF OVER ONE HUNDRED CASES.*

BY JOSEPH C. BLOODGOOD, M.D., BALTIMORE.

This study has led to some very remarkable conclusions.

It has been demonstrated that the failure to cure when the cancer of the tongue is fully developed is due chiefly to the neglect to remove the muscles of the floor of the mouth below the cancer.

* Author's abstract of paper read before the American Surgical Association, New York, April 9, 1914.

The high mortality after operations for cancer of the tongue is chiefly due to the removal of the floor of the mouth without removing a section of the lower jaw.

The investigation has also shown that if a lesion of the tongue is subjected to immediate operation within a few weeks after the onset of the lesion, the chances of a permanent cure are best. In this stage it will usually be sufficient to remove the local lesion with a good margin of healthy tissue, and this removal should be done with the electric cautery. The centre of the lesion should be preserved for microscopic study. When this is done the chances are that the lesion will still be benign. But even though the lesion prove microscopically cancer, the probabilities of a cure are almost 100 per cent.

In the past surgeons have apparently removed too much of the tongue and have performed too extensive operations upon the glands of the neck. Now this is theoretically incorrect, because cancer of the tongue infiltrates into the glands of the neck through the floor of the mouth. Should the glands be involved and the floor of the mouth not be removed, one could hope for little, if anything, from such an operation. If the glands of the neck are not involved, this does not preclude infiltration of the floor of the mouth.

When the operation is performed in one stage it is impossible to remove the tongue, the floor of the mouth, and the glands, and then to close the opening in the mouth, unless a section of the lower jaw is also removed. If the former operation is done thoroughly the mortality is very high—almost 80%—from primary or secondary pneumonia, or a late infection from the oral fistula.

The author was first impressed with these facts when it was found that the first cured cases were either cancer originating in the floor of the mouth, or cancer of the tongue invading the floor of the mouth, in which it was absolutely necessary to resect portions of the lower jaw in order to remove the disease. The extent of the disease, therefore, forced the surgeon to the more radical and mutilating procedure, and allowed him to perform removal *en-bloc*. During the same period earlier and more favorable cases were subjected to less extensive operations. When the floor of the mouth was not removed local recurrence always followed, and when it was thoroughly removed the patients died from the operation.

The author in November, 1910, for the first time deliberately, in a favorable and early cancer of the tongue, removed the right half of the tongue, the right floor of the mouth, the right half of the lower jaw and the glands on the right side of the neck in one piece. The wound was closed by suturing the mucous membrane of the right cheek to the remaining half of the tongue. The patient swallowed at once after the operation, and no recurrence followed. The micro-

scopic study showed that the floor of the mouth was infiltrated but the glands were free.

As the removal of the lower jaw, especially in the region of the symphysis is mutilating, the author has attempted to accomplish the same results in a different way.

The glands of the neck are first removed and, after the operation, their connection with the floor of the mouth below the lesion is thoroughly burned with the cautery, and the wound closed. Then the lesion in the tongue or floor of the mouth is attacked with the electric cautery. The application of this is usually repeated two or more times, until everything is destroyed down to the area of the first cauterization from below. The healed skin flap of the first operation forms the floor of the mouth and prevents an oral fistula.

The first operation after this method was performed in April, 1912,—two years ago. The lesion was a cancer occupying the floor of the mouth between the tongue and the symphysis of the jaw. It was about the size of a silver dollar. Permanent cures have been accomplished in similar cases by an *en-bloc* dissection of tongue, floor of the mouth, jaw and glands. The oldest case lived fifteen years, but this is a very mutilating operation, and the recent patient refused to submit to it. This led the author to attempt what he had had in mind for some years. At the present writing, two years since operation—there is no evidence of recurrence and no mutilation.

Since then four cases have received this treatment with, so far, apparent success.

The majority of cases of cancer of the tongue seek surgical aid at an unnecessarily late period. In every case the patient is warned. There is always something to be seen and felt in the tongue or floor of the mouth. If such a lesion is investigated at once, a local operation with the electric cautery should be sufficient; in a little later stage removal of the glands and repeated cauterizations in the mouth; in still later stages resection of the jaw must be done. The author's recent experience seems to show that this operation should be done in stages. First, thorough removal of the glands with cauterization of the floor of the mouth from the neck wound; second, cauterization of the lesion within the mouth; third, removal of the lower jaw and cauterized area. These points will be discussed in detail with illustrative cases in the complete paper.

When the cases observed until 1908,—a period of 18 years,—are compared with those observed during the past five years, the influence of education is well shown. The very early precancerous lesions have increased from 8 to 30%. The late and inoperable cases have decreased from 18 to 10%. The cures have increased from 21 to 50%.

When the author considers the cases personally operated on by him by these newer methods in the past five years (14 in all) he finds that there has been no postoperative mortality, and so far but one patient is dead of recurrent carcinoma. In this case the lesion of the tongue had previously been subjected to operation, the recurrent tumor was extensive, and the glands of the neck involved.

In this group every type of operation according to the newer methods just described is represented. At the present time there is evidence of recurrence in only one case; here the lesion was most extensive and the operation most radical.

The experience with these 14 cases proves the point as far as the immediate mortality is concerned, because considering all cases studied, the postoperative mortality has been about 22%. Since recurrences as a rule take place within one year of the operation, the results in these 14 cases also demonstrate that the improved methods promise a much larger per cent. of permanent cures, and certainly a longer freedom from recurrence.

We have, therefore, apparently conquered the technic of operations for cancer of the tongue. Now, if we can educate men to come earlier, we shall probably conquer the disease.

THE USE OF IODOFORM OIL IN JOINTS.

By E. G. Brackett, M.D., Boston,

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[From the Orthopedic Department, of the Massachusetts General Hospital.]

The use of medicinal agents in joint cavities is by no means new. That it has not always met with success is also well known, yet the principle is sound, and tallies with other surgical methods of today. Many of the results have been bad, because of some disaster, and others negative as to the final results; either because of some of the difficulties of technic and of the great risks under the older methods of surgery, or because of the improper selection of cases. The report of the results in the series here recorded is in the line of similar procedures, but may differ in some matters of technic and in the selection of cases.

There are two general types of cases for which the procedure may be used:—

1. Those in which there is no active disease at the time, and in which the object of the injection is largely mechanical, as, for instance, cases of old arthritis with adhesions, in which it is necessary to keep the surfaces apart after freeing the adhesions.

2. Those in which there is present active disease, and in which the object of the injection is largely for the effect of the agent employed

on the immediate process, as, for instance, in synovitis, of tubercular, Neisser, or other origin.

In all cases, the two things to be considered are:—

I. The special features of the technic of the operation.

II. The type of case to which the procedure is applicable.

I. *The Technic.* Several points in this procedure demand emphasis.

(*a*) The injection is always made by open incision, and not by puncture.

(*b*) Sufficient fluid is always left in the joint to keep the capsule under tension, therefore some form of stitch is necessary by which the tension can be maintained at the time of the withdrawal of the syringe.

(*c*) The adhesions, in old cases, are broken up before the joint is filled with oil and the capsule closed; other than this no violence is done to the cavity of the joint, and no handling is permitted, particularly of the tubercular joints.

(*d*) Fixation by plaster, or splints, is seldom used.

The Incision. The open incision is always used, and a word is necessary in reference to the choice of this method of inserting the oil, instead of by trocar injection. As a matter of fact the two methods have hardly enough in common to make a comparison. It is often not easy to find the cavity of these joints, not distended with fluid, even by a clear open incision, and, in the acute cases, with the very great edematous swelling of the synovial capsule, it is often difficult to find the cavity of the capsule. The synovial membrane is redundant, the pannus may cover a large part of the articular surfaces, these two surfaces are in contact and roll out into the incision, so as to completely block it, and, in the acute cases, as in the active stages of tuberculosis, the thick, velvety, synovial membrane protrudes into the wound, almost like a hernia. In the older cases with adhesions, the cavity is more or less obliterated, and a trocar will make a small area about its point. In the early cases, with a thick redundant membrane, one has only to experience the difficulty of finding the capsular cavity, even by an open and easy method, in order to realize the difficulty of finding it by a blind trocar puncture. The direct entrance by a clean cut is far more surgical than the blind hunt by a trocar, and likely to do far less damage. Another reason for the open method is the opportunity of obtaining a specimen for examination, to determine the nature of the infection. I believe it justifiable to open in some cases, to insure diagnosis, when the procedure is not dangerous, and may be advantageous. It is only too easy to call a joint case tubercular or otherwise, but in very many cases to which this method is applicable, it is impossible to positively make a diagnosis without further evidence than the clinical signs. The method is practically safe with extraordinary precaution.

The incision in the skin (preferably on the inner side) (Fig. I.) is a blunt ellipse and the flap dissected back the width of the ellipse. An ellipse with the flap in the opposite direction, shorter than the skin incision, is made in the fascia, and also turned back. It is not always possible to successfully complete this flap when the fascia is very thin and adherent. A straight incision, shorter than the fascia flap, is then made in the capsule, about one-half inch from the border of the patella, in the vertical direction of the leg. The patella lies in the middle or slightly below the middle of the incision.

The Stitch. In order that the capsule may be kept under tension while the fluid is left in the joint cavity, it is necessary to have some form of stitch which not only will make an oil-tight cavity, but also will hold the capsule firmly about the nozzle of the syringe while filling the joint, and will immediately close the opening on its withdrawal. It would seem a very simple method to determine on such a stitch, but several methods were tried before it was found that the most effectual was a double mattress, one enclosing the other. (Fig. 2.) The capsule is closed, beginning at the two ends, and carrying the needle through the fibrous portion of the capsule, but not quite through the synovial portion. By so doing, the soft, spongy synovial tissue is pushed up against the stitch by the pressure of the oil, and acts as a kind of valve. The capsule is closed from either end, with the exception of a space of three-eighths to one-half inch in the centre. Two mattress sutures are then placed in the same manner as the first sutures, one with the opening pointing above, and the other below, the second smaller than the first and enclosed by it. The syringe is then inserted between the threads of the inner mattress, and both drawn firmly about the nozzle. (Fig. III.) When the cavity is fully distended the syringe is withdrawn, the inner mattress is first pulled, then the other, and both tied. (Fig. 4.) The double ellipse flaps give two coverings to the capsular incision, and an additional protection against direct entrance to the joint. Silk is used in all of the sutures.

Preparation Used. Olive oil has been used in all of the cases of the series. Glycerine has been used by many operators and has had much favor, but does not seem to be so well adapted to use in these cases, on account of its hygroscopic properties. It is necessary to have a medium which will resist absorption, and remain in situ to protect the surfaces as long as possible. Very great care should be used in the selection of the oil; it must be of pure quality and of neutral reaction. Very many of the olive oils contain acids, which tend to disorganization and the freeing of some irritative products, as well as to the liberation of the iodine. Some of the irritative results, following the use of oil for surgical purposes, as for instance in the abdominal cav-

ity, have probably been due to this cause. The oil in all of these cases has been the French oil of Antoine Chiris. It is sterilized for one-half hour in boiling water, in a cotton plugged bottle, the top being also covered by rubber tissue, which is kept in place until the oil is used. Enough of the solution is used to fill the joint under tension of its capsule. For an adult joint three and one-half to four ounces is a sufficient amount. The special feature which must be borne in mind in all cases is the necessity of keeping the joint cavity sufficiently distended, to prevent the surface of the synovial capsule from coming in contact either with itself, or with the other articular surfaces, therefore it is necessary that the oil be left with the joint capsule under tension. This is Nature's way of protecting an acutely inflamed joint. In the usual synovitis, an excess of fluid is poured into the joint, separating the synovial surfaces, and this acts in two ways: first, to keep the inflamed surfaces from contact, thus diminishing the pain; and, second, to thus prevent adhesions in the acute stage, when adhesions are formed so easily. When the fluid is early absorbed, or removed, and the surfaces allowed to come in contact, while still acutely inflamed, the pain and sensitiveness, and the tendency of adhesions is increased. By imitating Nature's method,—filling the cavity with fluid,—the freshened surfaces are kept from adhering in the cases in which adhesions have been broken up, and, in cases of active disease, a decided amount of rest is given to the inflamed synovia, through the avoidance of friction.

In old cases with adhesions it is necessary to freely break up all bands in order to obtain as large a capsular cavity as possible. Many old bands are so strong as to give risk of fracturing a portion of the articular surfaces, and these may be cut with much greater safety. Also, experience of many operators has shown that the ordinary forcible straightening of these knees, held firmly by strong adhesions, is attended with a large element of danger. Many times the adhesions are stronger than the bone, which is much atrophied by long restricted use, and force results in a tearing off of a fragment of the articular surface. Puncture by trocar, at the best, will find only a small isolated cavity, and cannot meet the conditions which demand thorough freeing. It is particularly essential, in this class of cases, that sufficient oil be left in the joint to insure the actual distention of the whole capsule. Naturally, fixation in plaster is not indicated.

Selection of Cases. This method is applicable to:—

1. Cases of old infectious arthritis, with adhesions and with partial obliteration of the capsular cavity, but with no true ankylosis, and without destruction of cartilage.

2. Cases of infectious arthritis, in the acute stage, particularly those of Neisser origin, and more especially the type where there is one remaining persistent joint, which usually results in ankylosis.

3. Cases of primary synovial tuberculosis before involvement of cartilage or bone.

4. Cases of osteo-arthritis, with marked thickening of capsule and with pannus, in the sensitive stage, but before there has been loss of cartilage.

In other words, the method may be used in the affections of the synovial membrane, either when it is desired to keep the surfaces apart, or when it is desired to apply a remedial agent to the joint surfaces.

For the purpose of illustration, one case (a favorable one) of each of the types to which the method has been found applicable will be cited.

Case 1. An infectious arthritis of two or three years' standing, which had had several times brisément forcé. At the time of operation the case showed increasing sensitiveness, disability and pain; knee held in flexion of 20°; motion 5 to 10°, all painful; knee swelled; capsule evidently very markedly thickened; patella not movable. X-ray showed fragment of bone on the inner side of the joint, apparently from a fracture of a portion of the articular surface of the inner condyle, and a corresponding space on the under and anterior surface of the inner condyle. Incision was made along the inner side, the capsular cavity was found practically obliterated, with only a few small areas or pockets remaining to indicate the capsular cavity. The patella was so strongly adherent that it could not be freed by either blunt dissection or with the finger, but required the knife or scissors. There were no surfaces of bone exposed, but all articular areas were covered by thick, tough membrane, apparently simply inflammatory in character. On the other side, a piece of bone with cartilage upon one surface was found lodged between the tibia and condyle. This was removed, and the areas of cartilage which were exposed by this were clear and white. About one-half of the capsular cavity was restored. The adhesions on the outer side were so firm as to resist all attempts at freeing, except by actual section, and complete restoration of the joint cavity was not attempted. The joint at this time allowed flexion to 80° and nearly complete extension. The joint cavity was then filled with oil with the capsule under tension.

The case showed practically no pain during convalescence, which was uneventful. Knee kept in fixation for about two months, but slight amount of motion was given each day without force. Patient began walking with crutches in a month and during the following months used leg increasingly.

Twelve months later the knee allowed extension to within 5° of normal; 90° flexion; thickening had markedly disappeared; practically no pain; patella was somewhat movable from side to side. Patient walked without protection about the house and with a splint allowing motion on the street. Eighteen months after operation patient walked several miles daily without cane.

Microscopically the specimen showed an old chronic inflammatory process, and although every attempt was made to find evidence of some tubercular process the examination was negative in this respect.

CASE 2. Neisser infection, polyarticular. All joints cleared in the usual time, excepting one knee, which remained persistently painful, swollen and sensitive; flexed at 20°; no motion on account of marked spasm and pain; no fluid; very marked thickening of capsule. Case apparently one of the types in which in one joint the Neisser infection remained, and there being no fluid to keep the surfaces apart, it gave every indication of a stiff joint from adhesions. No progress had been made for two months. The joint was opened by incision on the inner side, a few adhesions found, but these were easily broken up, the joint moved to a position of 90° flexion, and the capsule, filled with oil, was left under tension. Little pain in convalescence. Motion allowed of a few degrees in a week. After three weeks gentle passive motion was given, which did not cause particular pain. Recovery with full extension; flexion to 110°. Patient has been able to work freely since (2½ years).

CASE 3. Tubercular synovitis of six to eight months' duration. Unable to work for six months; knee flexed at 45°; motion practically nil on account of spasm; whole knee swollen; tender; marked capsular thickening; no fluid; complete disability. X-ray showed no involvement of bone; articular surfaces clean; normal cartilage space between bones. T. B. von Pirquet reaction, positive. Incision on inner side opened to markedly thickened synovial membrane, fragile, vascular, of typical tubercular appearance, pannus extending over to the edges of the articular surface of bone; remaining cartilage clear, smooth; no sign of erosion of any part of joint that could be inspected through the incision. No manipulation was given to the inside of the joint except to remove a small bit of the synovial capsule sufficient for microscopic examination. Oil injection, under tension. Recovery from operation negative. Leg in plaster for several days. Split plaster allowing passive motion daily. At end of eight weeks a second injection was given, and at this time free oil was found in the joint. No weight-bearing was allowed for six months, but patient wore a split plaster and used crutches. At end of eight or nine months patient returned to work with plaster. Two years later leg showed practically normal motion except that of extreme flexion; no swelling; no tenderness. Has worked for 2½ years at his occupation as a plasterer with no return of symptoms. Microscopic examination of specimen showed the process to be tubercular.

CASE 4. Infectious arthritis with hypertrophic areas, with increasing disability for two years. Permanent flexion of knee of 15° to 20°; motion allowed in 25°; marked capsular swelling and villous condition, evident to palpation; pain and sensitiveness with use, to such a degree that disability was nearly complete. X-ray showed hypertrophic process, without involvement of cartilage. This case had a somewhat multiple arthritis, but the knee had been the longest involved and its disability was the greatest. The process was not at the time active. Incision on the inner side showed thickening of whole synovial portion of capsule, pale in color, with pannus extending over onto the edges of the articular surfaces but not covering them, and several large lipomata, which were removed. Oil injection under tension. Motion allowed at end of two weeks. No pain during convalescence. Three months later swelling and capsular thickening had disappeared; knee could be extended freely and flexed to 100°; no pain on weight-bearing. Eight months later knee had remained quiet; patient was using joint freely; there was no swelling of capsule; crepitus had disappeared.

The list in this series includes cases of the four classes above mentioned operated on by this method. The post-operative period of observation varies from six months to four years. From the study of these cases the following summary has been made:—

The first group comprises the cases of old infectious arthritis with adhesions—object of operation may be called mechanical, viz., to keep apart the freshened surfaces after freeing the adhesions—10 cases. Seven have been successful. Two were unsuccessful and they showed by x-ray destruction of the articular surfaces. These two illustrate the type of case which should not be attempted by this method, viz., the cases in which the arthritis has resulted in destruction of cartilage. In both, this destruction was present, and the operation gained nothing. In the others, motion resulted varying from 45° to 100°. In cases sufficiently severe to warrant an operation it is doubtful if complete motion is ever to be expected.

The second group comprises the cases in the earlier stages of disease. Object of operation is also in a large measure mechanical. This group includes the three types, viz., (*a*) acute infections (Neisser, etc.), (*b*) early tubercular synovitis, (c) chronic infectious (osteo-arthritis, etc.).

Type A—Neisser and Acute Infectious. Three cases have been treated, none in the very early stage. With the strong tendency of this form to a spontaneous recovery, it is doubtful if this operative procedure is to be generally advocated in the early period of the disease, for it is recognized that this infection is the most amenable to treatment, and in the usual case, even in the persistent joints, radical measures are rarely necessary. But these joints do occasionally go on to destructive changes, and it is in these persistent ones, before this stage of articular invasion has been reached, that the use of oil is to be advocated. It is in this later stage, where the capsular thickening persists, where adhesions are forming and becoming firm, that the indications for this operative treatment are evident, and has resulted in a rapid diminution of the capsular swelling, disappearance of pain and sensitiveness, with increase of motion.

Type B—Tubercular Synovitis. This type forms the most interesting of the group. It can be definitely stated that the operative procedure is not applicable to cases in which there is involvement of the articular surfaces. The old records of cases show that these cases of tubercular disease of the knee practically all came to ankylosis or to excision; but the records also show that the average case did not present itself for treatment until about two years after

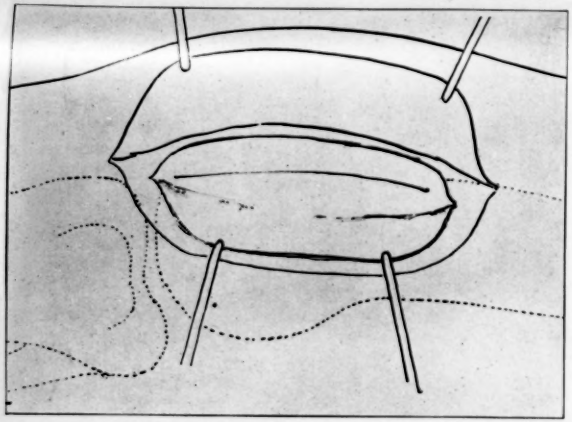


FIG. 1.



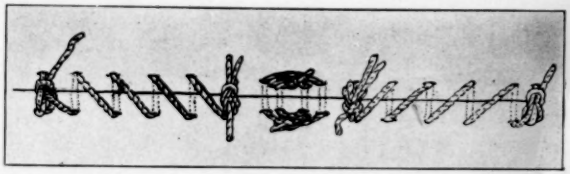


FIG. 2.

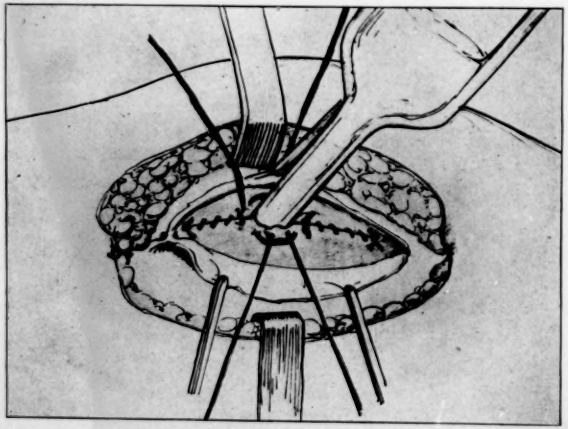


FIG. 3.

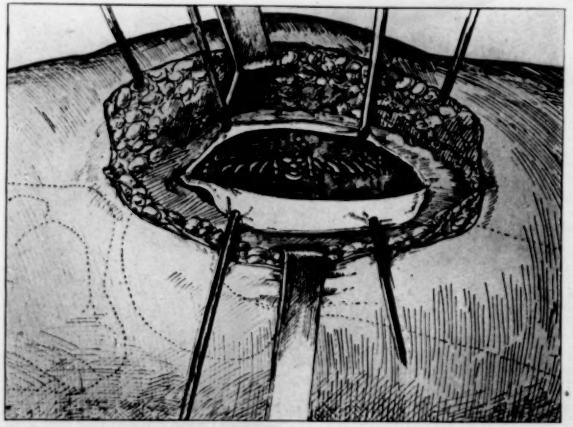


FIG. 4.

the onset of the disease, and at this time the disease was well advanced. At present many cases are seen in which there is no evidence, either clinical or by the x-ray, to indicate involvement of bone, either because diagnosis of these conditions is made in much earlier stages, or because the cases are presenting themselves earlier in the course of the disease. Moreover, the further study of these cases, especially by early operation, shows that a large number of these begin as a primary tuberculosis of the synovial capsule. The excision of these knees, in this stage of purely synovial disease, is a step most radical, yet experience has shown that these cases progress more or less steadily to distinct bone disease. It is in this stage that the attempt has been made to cut short the process by the internal medication of the joint. The usual ultimate result is such an unfortunate one, that attempts to this end are to be desired, provided the method is a safe surgical procedure, and a few favorable early cases gave encouragement. Ely has shown that the cure of the tuberculosis is in many instances by the formation of fibrous tissue, and may serve as the means through which the cure is effected in these cases, but so far there is no proof in this series. One feature of this method, by no means an unimportant one, is the establishment of a positive early diagnosis, a thing not always easy or even possible by clinical signs alone, in the early stages of the process, and the evidence thus obtained in these cases has very materially aided in the general diagnosis of the early tubercular joint lesions.

Thirty cases are available for report. From the standpoint of the results they may be divided into three groups.

1. Cured Cases (8). It is doubtful if the final result of a disease so insidious can be definitely given until a very long time has elapsed. Freedom from symptoms, even for a year, is not sufficient to warrant placing the case among those cured, as has been shown by one of the best early results. An apparent cure has occurred in eight cases, which have stood the test for one and one-half and two and one-half years. The cases were placed as cured by the following tests: Freedom from pain or sensitiveness, maintenance of motion, absence of added deformity, absence of capsular thickening,—all with continuous use.

2. Arrested Cases (14). To this second group belong the less successful and more usual cases, which have not shown definite improvement. There has, however, been a decided checking, as shown by the diminution of (1) sensitiveness, (2) deformity, (3) swelling of the capsule, by the maintenance or increase of motion. In these cases, the x-rays have given no evidence of extension of the disease to the erosion of cartilage or involvement of bone. In other words, the condition has changed from one in which the evidence was pointing toward a progressive process, to a condition in which the evidence was directed toward a retrogressive process of the disease. The question will arise whether this was not the result of the usual rest and fixation of the treatment, but the fixation was no greater than before, and usually much less, for these joints are not kept in perfect fixation, and the change in the clinical course was too synchronous with the operation to be regarded as a coincidence.

3. The unsuccessful cases (8) are those in which there has been no decided improvement, or the present state cannot be learned. Three were Italians who have quite dropped out of sight. Experience has shown that these are not a favorable class. A few were operated upon in which the x-ray showed a slight involvement of the articular surfaces and the result in these was uniformly bad. The disease was in no way checked, and the cases came later to an excision.

At the present, the most practical value of this operative procedure, in these tubercular cases, depends upon the value which is put on the "checking of the disease." To estimate this, one must have in mind for comparison, the usual course of this disease under fixation and rest. Without exception, the non-operated cases which have been kept under observation, have progressed steadily, by a remitting course, to increasing disease and to increasing disability, and ultimately to excision or to amputation. This applies also to the old cases in the past, whose records have been looked up. Besides the three cured, in seven of these cases there has been decidedly an arrest in the condition as shown by the symptoms, the clinical signs, the x-rays, and the clinical usefulness of the joint. This seems decidedly a gain, particularly when it is considered that this is the stage when excision would not be resorted to, at least as a routine. It must be also borne in mind that the after-care in an out-patient clinic cannot be properly carried out, and many times patients were found walking on the joint three or four months after operation, when fixation had been carried out up to the time of operation.

Type C. Chronic Arthritides. The cases of chronic arthritides in which benefit has been obtained are those of the osteoarthritic type, of the chronic form of the infections, with enlarged villi but without the destruction of cartilage. The procedure is not of use in the atrophic type, or in the atrophic stage of the infectious type. Three cases of this type have been operated upon and without benefit. The cases which have been benefited have shown a decided diminution of the capsular swelling and thickening, diminished sensitiveness and increased use of the joint, and of this type three cases have been operated upon with distinct benefit to each.

CONCLUSIONS.

This method is applicable to the cases of capsular involvement, of various types of infection, and in the stages in which there is no involve-

ment of the articular surfaces. These cases may be divided into two groups:—

1. Cases of old infection in which adhesions have been freed, and it is desirable to keep the surfaces apart. (The use in these cases is largely mechanical.)

2. Cases of infection, of

(*a*) Acute infection (Neisser, etc.).

(*b*) Tubercular synovitis (early stage).

(*c*) Chronic arthritis (selected cases).

The procedure is in no way a substitute for arthroplasty; is not applicable to cases of disease of any origin, in which the x-ray shows involvement of the articular surfaces; but is essentially for those cases, only, in which the abnormal condition is confined to the synovial membrane. In tubercular cases, the early cases naturally show the most marked definite improvement, and in these cases repeated injections are advocated, preferably at intervals of eight to twelve weeks. This procedure should be considered as an incident in the treatment of the tubercular synovitis, not a substitute for the fixation and rest. Neither is permanent fixation desirable. The absolute immobilization is, perhaps, quite as disastrous as the other extreme. A daily gentle passive motion, without forcing the arc of motion allowed, is decidedly a benefit, does not increase the activity of the disease, and does prevent the contraction of the capsule and formation of adhesions.

In Group I, in which the object is largely mechanical, the motion is begun early, within the first two or three days, but never with violence or even to the point of causing pain. In the other cases (*a*) and (*c*) of Type A, the acute infectious and the chronic arthritides, motion is also begun early, on the third or fourth day, and given once or twice daily. After two weeks the leg is put in a split plaster, and locomotion allowed without weight-bearing.

Medical Progress.

REPORT OF PROGRESS IN SURGERY.

BY JOHN BAPST BLAKE, M.D., BOSTON.

IT becomes yearly more and more impossible to give, within moderate limits, an adequate outline of the progress of general surgery as indicated by current literature. The number of monographs steadily increases, and the duty of the reviewer becomes correspondingly complicated, even with the assistance given by abstracts and indexes. America is certainly contributing, at present, a generous share to the sum-total of investigation and treatment of disease. This is true both in the output of the laboratories and of the surgical wards of the hospital.

In a way, it may be said that conspicuous advances have been made in the broad sub-division of,—anesthesia; surgery of the head; standardizing treatment of fractures; surgical conditions of the thorax; surgery of the stomach; sterilizing the skin both in minor injuries and in preparing for operations.

1. Anesthesia:

There have been at least one hundred important monographs on this subject in the past twelve months. These papers have ranged from the Anoci-association of Crile, through local anesthesia pure and simple, to the new rectal anesthesia of Gwathmey.

RECTAL ANESTHESIA.

Technic for the introduction of oil ether—colonic anesthesia devised by J. T. Gwathmey, M.D., abstracted by Charles Gordon Heyd, M.D.

Contraindications: 1. Whenever ether is contraindicated *except* when the patient has been ill from a previous administration. Here it can be given with impunity. It can also be given in bronchitis, asthma. 2. Pathological conditions of the lower bowel, colitis, hemorrhoids, fistula, etc. 3. When the patient complains very much upon its introduction.

Preparation of the Patient: 1. A laxative, mild, avoid all purging. 2. Irrigation of the colon until the return is clear, three to four hours before operation.

Apparatus: 1. A small catheter and a funnel. 2. Two small rectal tubes inserted side by side to flush and withdraw fluid.

Administration: 1. *a.* One hour before operation: Morphine, 1/8 to 1/4; atropin, 1/200 to 1/100 by hypo.; *b.* one-half hour before operation per rectum: Chlorotone, gr. 5-10; ether, drams 2-4; olive oil, drams 2-4; 2. *a.* Mixture for adults: Olive oil, oz. 2; ether, oz. 6. Mixture for weak anemic patients: Ether, 55, 65%; oil, 45, 35%. Mixture for children: Ether oil, 50%. *b.* Patient in Sims' position. The catheter is well lubricated and inserted, four inches within the rectum. The mixture poured slowly into the funnel, at least 5 minutes being consumed. Introduce oz. one, for every *twenty* pounds of body weight except for obese. From 10 to 30 minutes is necessary before patient can be moved.

Danger Signals: 1. Loss of lid reflex. 2. Stertor or embarrassed respiration. 3. Approaching cyanosis. If any of the above signs are present withdraw two or three ozs. of the mixture from the rectum immediately. If the breathing is regular with reflexes active, the patient will be relaxed and in surgical narcosis.

Post-Operative: Immediate irrigation of the colon with cold-water soap suds. Then withdraw one of the tubes from rectum and introduce two to four ozs. of olive oil and one pint to one quart of cold water. Withdraw tube from the rectum.

It is interesting to recall that more than 20 years ago Post made observations upon rectal anesthesia here in Boston, and at a much more recent period Cunningham and others did similar and more extensive work. A rather large number of deaths were, however, reported from various parts of the country following rectal anesthesia and the method has been recently much less in evidence. With the new technic of Gwathmey, rectal anesthesia bids fair to become a valuable addition to our methods of producing general narcosis.

LOCAL ANESTHESIA.

The field of local anesthesia is spreading rapidly, not only in the variety of surgical procedures for which it is applied, but also in the steadily increasing number of surgeons who are perfecting its technic. It must be emphasized that local anesthesia requires a very careful, painstaking, and somewhat tedious technic if it is to produce its maximum effect. Altogether too often has the surgeon blamed the anesthetic in the past, when his own inaccurate methods were the cause of failure.

Two drugs have rapidly taken the place of all others in the local field:

1. Novocain.
2. Hydrochlorid of quinine and urea.

These two make the use of cocaine for the general surgeon entirely unnecessary, since they are equally efficient and far less toxic.

In an admirable paper on local anesthesia in *Surgery, Gynecology and Obstetrics*, 1913, p. 842, Dr. J. F. Mitchell presents the developments and modifications that have occurred in the previous five or six years.

This monograph covers the field so completely as to make it unnecessary to quote others at length.

Rood: *British Medical Journal*, 1912, No. 2, p. 1701, describes in considerable detail what he calls regional anesthesia, that is to say nerve blocking, at points distant from site of operation, summarizing its advantages in the extent of area anesthetized by a single injection, and, that the site of operation is not obscured by the edema of the injected fluid, and finally that operation may thus be done on inflamed parts, since injection is made a considerable distance away. Anesthesia, he says, last several hours. He reports two hundred and fifty-four cases as very satisfactory, requiring general anesthesia as an addition in only seven.

Braun, in the *Deutsche Medizin. Wchnschr.*, 1913, No. 39, p. 17, discusses the advantage of local anesthesia in the reduction of fractures and dislocations, and reports fifty cases during the previous year, claiming that reduction was easier under local than under general anesthesia. He says that as early as 1885, Conway, an American surgeon, used this method, followed shortly by Von Reclus.

SPINAL ANESTHESIA.

It is a little difficult to say whether on the whole spinal anesthesia is used at present more than it was a year ago; probably it is.

Donaldson, H. J., *American Journal of Surgery*, 1913, No. 27, p. 325, reports two hundred and four cases of spinal anesthesia, consisting of operations on the pelvis and abdomen as high as the gall-bladder; in only fifteen of these either a second injection was required, or a little ether was applied. Thirty-four cases suffered from nausea and vomiting. There seems to have been no other complications. The author thinks it is safer than ether. He does not understand the existing prejudice against its use. He uses stovaine for anesthesia.

Babcock, *Journal Am. Med. Asso.*, 1913, p. 1358, contains an excellent article on spinal anesthesia in gynecology and obstetrics and abdominal surgery. He says that since 1904 five thousand operations have been performed under spinal anesthesia in the Samaritan Hospital, Philadelphia. Of these, about three thousand were his personal cases. He says that with a similar technic, with the position of the operator and the patient reversed, he himself would have accepted spinal anesthesia. Stovaine has been chiefly employed. The repeated production of spinal anesthesia in the same person is no more harmful than a single injection. It may have a large mortality in the hands of one not possessing sufficient clinical skill. He concludes that while not a universal anesthetic, it produces the greatest degree of muscle relaxation with the least protoplasmic disturbance. It is probably more dangerous than a light narcoses under ether or nitrous oxid-oxygen, but it is safer than prolonged narcosis. It causes an earlier and more marked fall in blood-pressure than other anesthetics. It should be avoided in conditions of marked hypotension of the circulation. Headache and palsy mean that faulty solutions have been injected. It is useful in obstetrics, in pulmonary tuberculosis, and heart disease, also in acute peritoneal sepsis. "Against spastic or paralytic ileus it is a most potent agent, and its use will often render operative intervention needless. It is relatively safer in the young and robust than in the enfeebled and toxic."

Bainbridge, *Med. Press and Circ.*, 1913, p. 334, reports personal experience with ten hundred and sixty-five cases, half of which were done under cocaine and the other half under stovaine, or tropacocaine. In all his cases, there was only one death and that was probably from status lymphaticus. The indications for spinal analgesia are the contra-indications for inhalation anesthesia. Some of its objections are that a dose once given cannot be diminished, and that its effect may pass before operation is completed.

Jonnesco: *Zentralbl. f. Chir.*, 1913, p. 469, believes that stovaine and nitrate of strychnine may be injected at any point in the spinal canal without danger. In nearly two thousand opera-

tions he had only two deaths. For anesthesia of the head and upper extremities he makes the injection between the first and second dorsal vertebrae, otherwise between twelfth dorsal and first lumbar vertebrae. Jonnesco is one of the few who recommend spinal anesthesia for operations above the diaphragm; his contentions are not widely accepted.

Nicolich, in a paper read before the French Clinic of Urology, October, 1912, considers spinal anesthesia decidedly superior to chloroform in genito-urinary surgery, because he thinks it is less dangerous and because it makes the operative attack much easier.

ANOCI-ASSOCIATION.

Crile's method has been adopted by many good surgeons, but by no means all. In slight detail, Dr. Crile has modified his technic and now injects the quinine and urea at a distance from the line of incision so that anesthetic effects will cover the whole field of operation, the distance injection doing away with edema of the wound itself which might possibly interfere with prompt healing. Quinine and urea are not used where infection is present. The strength varies from one-half to one-sixth of one per cent.; novocain one-fourth per cent solution. Morphine and scopolamine are used as preliminary narcotics. This technic adds a little to the time of operations. It is fair to say that those who use this technic are convinced that it is followed by a convalescence almost entirely free from pain and from the discomforts which formerly attended major surgery.

It is difficult and unsatisfactory to endeavor to summarize important papers describing new methods. It is only right that the author of these methods should insert original monographs. Either one of two papers by Crile should be consulted by those who desire to follow his precise technic in his method of producing shockless operations; and conclusions should be based, of course, only upon a series of cases in which Crile's precise technic has been faithfully followed. These two papers are "Kinetic Theory of Shock," *The Lancet*, July 5, 1913, and in somewhat more concise and shorter paper "Anoci-Association." *New York Medical Journal*, January 10, 1914. In this latter paper Dr. Crile says, "Comparing the last one thousand operations performed by myself and staff at the Lakeside Hospital, we adopted the fully developed anoci technic with the last one thousand operations; we find that in the former the mortality rate was 4.6 per cent., while in the last one thousand anoci operations the mortality rate was .8 per cent." These figures need no comment.

GAS OXYGEN.

Gas oxygen is unquestionably the safest general anesthetic we possess, but it must always be in the hands of an expert. Crile himself, who has done so much to increase the use of nitrous oxid says in *Clinics of J. B. Murphy*, February, 1914, "Nitrous oxid skilfully given, in my estimation, is the best anesthetic for surgical purposes, but it ought never to be given except by some one who has been well trained in its administration. In my judgment, the degree of M.D. does not qualify a man to give nitrous oxid anesthesia or any anesthetic, in fact. It gives any one a legal qualification, but it does not give one a moral qualification. It takes a special training to give nitrous oxid, for it is the most difficult of all anesthetics to give well. I am speaking about this because I have known of certain fatalities from nitrous oxid anesthesia administered by inexperienced anesthetists. I believe that when well given, it is the safest anesthesia one can use, and I think that nitrous oxid not well given is, perhaps, the most dangerous anesthetic there is. In my own clinic in the Lakeside Hospital we have given nitrous oxid for general surgical purposes eight thousand times."

Nitrous oxide may be given by intratracheal method as described by Boothby and Cotton in *Surg., Gyn. and Obstet.*, November, 1911, p. 572, or more commonly through an inhaler of a perfected apparatus: Cotton and Boothby, *Surg., Gyn. and Obstet.*, September, 1912, p. 281:

I. To be safe, effective and suitable for major surgical work a nitrous oxid-oxygen anesthesia must be so conducted that the patient is never in the least degree cyanotic; on the contrary the patient must always be pink.

II. No attempt should be made to use the dangerous procedure of increasing intrathoracic tension of the gases for the purpose of deepening the anesthesia.

III. In those cases that cannot be sufficiently relaxed for the purpose in hand by the use of nitrous oxide with a sufficient proportion of oxygen to prevent cyanosis, the anesthesia should be deepened by the addition of as much ether vapor as may be needed; experience has shown that the total amount of ether used is small and has little and often no effect on the quick and agreeable recovery incident to this form of anesthesia with its absence of post-operative "surgical shock."

IV. We believe an anesthesia without cyanosis to be safe in expert hands. The anesthetist, however, must have skill and experience to recognize the warning signs of too much nitrous oxide even without cyanosis (a picture not striking enough to appear to the tyrol) as well as the signs of too much ether.

V. Therefore, to be practical for surgical work an apparatus for the administration of nitrous oxide-oxygen-ether anesthesia must possess the following fundamental features:

1. The apparatus must deliver, for any length of time, any desired proportion of nitrous oxide and oxygen, without requiring constant attention from the administrator; in other words the high pressure of the supply tanks must be

automatically reduced to an easily controllable working pressure; the importance of this feature necessitates that the reducing valves be an integral part of the apparatus.

2. It must be possible to add ether vapor in any strength from the merest trace to a high precentage: and any desired variation in this percentage must be gradually and yet rapidly made.

3. There must be a method of instantly estimating by the eye the approximate proportion of each gas being administered.

4. The face piece must be not only air-tight but practically self-retaining.

5. The apparatus must be strong, light and reasonably portable.

VI. The apparatus herewith described and illustrated is designed to meet the clinical and the physiological requirements of surgical anesthesia and it effectively overcomes the mechanical difficulties attendant to the successful administration of nitrous oxide-oxygen-ether.

Other papers on nitrous oxide anesthesia will be found in the *Proceedings of the Society of Biology*, 1912, p. 652, by Ambard and DeMartel, and Collier, *Jour. Med. Asso.*, Ga., December, 1912, who has used it in one hundred and ninety-four cases.

EXTRADURAL OR SACRAL ANESTHESIA.

Lawen, was one of the first to recommend this method and gives a report of his recent experience. He also gives a compilation of the literature in *Ergebn. d. Chir. u. Orth.*, 1913, V. 39. He traces the origin of the method and describes the anatomy of the epidural space and gives technic. He reports sixty-five cases. In three cases anesthesia failed and narcosis had to be added four times. Those who should be excluded from this are the fat, senile, the arteriosclerotic, and those suffering from heart disdisorders of the nerves.

Schlimpert: *Surg., Gynec. and Obstet.*, 1913, p. 488, describes in detail the technic as used at the Freiburg Woman's Clinic where the method is used for both low and high extradural anesthesia, that is to say, below and above the symphysis. The results are as follows:

Low anesthesia; duration from three-fourths to one and one-fourth hours; of one hundred and fourteen cases about half showed complete anesthesia, while one-tenth were failures.

High anesthesia; in three hundred and forty-two cases of high anesthesia forty-six per cent. were complete, and the failures were apparently a little more than in the low cases, though the figures seem to be contradictory.

INTRATRACHEAL ANESTHESIA.

Intratracheal anesthesia will presumably continue indefinitely to be practiced only by exease, nephritis, anemia, or functional or organic perts. Its dangers in the hands of the unskilled are acknowledged. Its advantages, particularly in surgery of the brain and face and thorax, are indispensable. Gas oxygen instead of ether may be used as an anesthetic.

Boothby-Cotton, have written an excellent paper, perhaps as good as any which has appeared, bearing upon both physiological and clinical aspects, "Intracheal Insufflation," *Annals of Surgery*, January, 1913. A list of ninety references covering all the most important articles bearing upon the subject is appended. Its conclusions are as follows.

1. Intratracheal insufflation respiration is the only artificial method that absolutely provides for a sufficient aeration of the lungs, regardless of the respiratory movements of the patient, and that properly administered and safeguarded can be rendered devoid of intrinsic danger.

2. In consequence, anesthesia by this method is indicated whenever the operation is about to interfere in any way with the ability of the patient to voluntarily respire.

3. Therefore it ought to be used in all intrathoracic work and in extensive operations about the head, neck, mouth.

4. Of the various anesthetics to be used with this method, ether with air, preferably supplied by a foot pump, is the most applicable for general use; however nitrous oxide-oxygen with minimal quantities of ether may occasionally be the anesthetic of choice.

5. To prevent deaths from emphysema, no matter what form of apparatus is used the same must be provided with a *safety-valve* by means of which the intrathoracic pressure cannot exceed 15 mm. mercury.

The technic of inserting insufflation tubes is given by Jackson himself, *Surg., Gynec. and Obstet.*, 1913, p. 507. It must be done under full anesthesia, the patient's head fully extended and without gag.

Peck, *Jour. Am. Med. Asso.*, 1913, p. 839, gives his personal experience with intratracheal insufflation anesthesia in a series of four hundred and twelve cases. He summarizes its advantages as being ideal in intrathoracic operations, lessening the shock, first, through relief of strain on the respiratory apparatus and circulatory and nervous systems, and through the even degree of the anesthesia maintained. It prevents aspiration pneumonia and makes preliminary tracheotomy unnecessary in operations on the tongue, jaws, mouth, nose, and pharynx. It is especially useful in operations about the head and neck and in awkward operations in general. The degree of anesthesia is under perfect control.

Janeway, *Laryngoscope*, 1913, p. 1082, describes a new instrument for catheterizing the trachea, pointing out the advantages of the new method in comparison to the old methods and its convenience to the operator.

INTRAVENOUS ANESTHESIA.

This form of anesthesia is used to a certain extent in some of the foreign clinics, though it has not apparently been widely adopted throughout the United States.

Graef: "Methods of Using Intravenous Ether and Isopral Anesthesia," *Beitr. z. klin. Chir.*, 1913, p. 173, reports five hundred and ten intravenous cases in the City Hospital at Nürnberg without a single death. Contra-indications are the following: myocarditis, marked arteriosclerosis, nephritis, etc. The after-effects are so slight that the patient prefers intravenous to general anesthesia. Strict asepsis and slow injection are absolutely essential.

Honan and Hassler: "Experience with Intravenous Anesthesia," *Surg., Gynec. and Obst.*, 1913, p. 206, report fifty-one cases in which hedonal, ether, and a mixture of paraldehyde have been used. By this method, anesthesia is rapidly induced, the breathing is natural, color remains good, and muscular relaxation is absolutely satisfactory to the operator. The awakening of the patient is prompt and with clear mentality; there is absolute absence of nausea and vomiting. Cases have been those of general hospital service. There was one failure in the early cases. They particularly urge that strict attention be paid to details of technic to insure satisfactory results. The description of the technic in their paper is excellent and complete.

Kepler and Breslauer: "Intravenous Narcosis," *Deutsch. Ztsch. f. Chir.*, 1913, p. 265, carry out investigations in search of an ideal intravenous injection which they think should consist of but a single injection of a small amount of narcotic that would act on brain cortex and have no effect on any other organ. It should be free from danger and its action should pass rapidly after the operation. It is unnecessary to say that their search has not been successful.

Buxton: *Tr. Internat. Cong. Med.*, Lon., 1913, August, publishes a very interesting article on the dosimetric method of administering chloroform based on the fact that percentages of vapor below *one* per cent. do not produce anesthesia but interfere with the temperature and metabolism. Higher percentages induce anesthesia, lower blood pressure, and interfere with respiration. More than two per cent. will impair circulation, and double this amount may be considered fatal. Buxton does not consider any of the mechanical inhalers perfect. He has used chiefly the Vernon-Harcourt regulator and finds it satisfactory. No matter what changes may occur in the patient's breathing, a safe strength, two per cent., should not be exceeded, and even struggling does not call for a restriction of the supply.

Kasashima: "Pantopon-Scopolamine Narcosis," *Beitr. z. Geburtsh. u. Gynäk.*, 1913, p. 90, reports on two series of gynecological operations —in one morphine-scopolamine, in the other pantopon-scopolamine were used. In all cases lumbar anesthesia was used in combination with the narcosis. The author says that pantopon series was more satisfactory. There was less vomiting and less bronchitis. There were no deaths and the one case of collapse was probably on account of the pantopon, as the dose was .02 pantopon and .0003 scopolamine given twice at hour intervals before the operation. Pantopon is an opium derivitive, approximately the equivalent of morphine, but theoretically free from its after-effects.

Diwawin, *Zentralbl. f. Chir.*, 1912, p. 1729, discusses pantopon injections in combination with local anesthesia. His technic is the same as in preceding paper. He reports seventy-two cases, including mastoid, gastroenterostomy, appendectomies, and herniotomies. The patient sleeps, as a rule, for two or three hours after the operation, and has no post-operative pain and no vomiting. Alcoholics are not good subjects. Grave diseases of the heart and lungs, as well as advanced age, may be considered contra-indications for the use of pantopon-scopolamine.

Book Reviews.

The International Medical Annual. A Year Book of Treatment and Practitioners' Index. New York: E. B. Treat and Company. 1914.

This thirty-second annual issue of this standard year-book, edited from Bristol, England, successfully continues the aim of its predecessors to present accurately the progress of the preceding year in all branches of medical science. The progress of the past year was so great and varied that the volume has been increased by nearly 100 pages. It is the work of 37 distinguished contributors, among the new names appearing this year being Dr. Lawrason Brown and Dr. Edward N. Packard, Jr., of New York, and Dr. Beverley R. Tucker, of Richmond, Va. The volume is fully illustrated with 63 full-page plates and 82 cuts in the text. The first part is a dictionary of materia medica and therapeutics, including particularly a general review of radio-activity and electrotherapeutics, a chapter on thorium, and one on tuberculin therapy. The second part is a dictionary of treatment, with special articles on anesthetics, brain surgery, cancer, fractures, hernia, infant feeding, pellagra, surgery of the spinal cord, syphilis, tuberculosis, and typhoid fever The third part is devoted to miscellaneous topics of public health, including medico-legal, forensic, and state medicine. Twenty-eight new terms have been added to the initial glossary.

Though it aims to be cosmopolitan, the English point of view of this publication almost in-

evitably prevents it from noting some important foreign advances, notably so valuable a contribution to the technic of transfusion as the Kimpton-Brown tube. In the main, however, the book covers its field thoroughly and remains a reliable manual of progress for general practitioners.

Diseases of the Heart and Aorta, and Their Treatment. By DR. ARTHUR LECLERCQ. Paris: Octave Doin and Son. 1914.

This volume by the author of "Diseases of the Sixth Decade" (reviewed in the issue of the JOURNAL for Aug. 24, 1911, Vol. clxv, p. 298) may well be classed with that work, indeed it essentially represents a new edition of the volume in that series devoted to diseases of the heart. The first part is devoted to an anatomophysiologic study of the normal and of the abnormal heart, and the methods by which it may be examined. The second part deals with cardiac diseases under the headings of cardiosclerosis, the cardiarteritides, and cardiatheroma. The third part considers the treatment of cardiac and aortic diseases. The book is illustrated with 38 figures in the text and a plan of the heart. Like its predecessors, it is a model of Gallic lucidity, but seems hardly likely to appeal to the busy American general practitioner.

The Treatment of Acute Stenoses of the Larynx. By DR. WILLIAM ZORRAQUIN, Buenos Aires. Paris: Vigot Brothers. 1914.

This monograph deals with the treatment of severe acute stenoses of the larynx requiring immediate surgical intervention. In the first chapter the author discusses intubation and tracheotomy, which he regards as serious procedures and believes often unnecessary. In the second chapter he discusses what he terms the pathologic physiology of these stenoses, and describes the new procedure,—tracheotomy with a tracheal valve,—by which he believes to have obviated the disadvantages of classic tracheotomy, reporting one case in which this method was employed. Even if not convincing, his exposition is of notable interest, and the figures of his apparatus suggestive of possible improvement in the mechanism of tracheotomy.

Outlines of Greek and Roman Medicine. By JAMES SANDS ELLIOTT, M.D., Ch. B. (Edin.). Illustrated. New York: William Wood and Company. 1914.

This admirably written and instructive monograph describes the history of medicine from the half-mythical days of Aesculapius till the death of Paulus Aegineta, when, with the end of the seventh Christian century, medicine, like the other sciences and arts, was plunged into medieval darkness and temporary abeyance. An immense amount of interesting material is here gathered within the limits of very brief space. The text is illustrated with five full-page plates and one line-cut. It is sincerely to be hoped, as the author hints, that the appearance of such a work may be evidence of a recrudescence among physicians of intelligent interest in the history of their own craft, and may stimuate the study of that history, not only by individuals, but in medical schools as part of the professional culture which they impart.

Studies from the Rockefeller Institute for Medical Research. Volume xviii. New York: The Rockefeller Institute for Medical Research.

This volume of reprints represents the results of investigations conducted at, or under the auspices of, the Rockefeller Institute, during 1913 and a part of 1912. It consists of 60 papers, in English or German, by a number of different workers, in various departments of medical science. Most noteworthy among them is Flexner's Huxley lecture on "Problems in Infection and Its Control," and the continuing papers of his series on poliomyelitis and meningitis; the work of Rous and others on chicken tumors; of Noguchi on syphilis and the spirochetes; of Loeb on parthenogenesis; and of Peabody on the inorganic metabolism in pneumonia. Many of the papers are abundantly illustrated, and the volume, like others of the series, constitutes a valuable library of recent progress in experimental medical research.

The Pathogenesis of Salvarsan Fatalities. By DR. WILHELM WECHSELMANN, Berlin. Authorized Translation by CLARENCE MARTIN, M.D., St Louis, Mo. St. Louis: The Fleming-Smith Company. 1914.

In his large experience as director of the dermatologic department of the Rudolph Virchow Hospital, Wechselmann has had only a single fatality from the administration of salvarsan. This he reports in detail and from the literature collects three other fatal cases following intravenous injection, six after subcutaneous and fifteen after intramuscular injection, 25 after intravenous injection where death was due to errors of technic, 14 after combined treatment, 25 in which nephritis was the chief cause of death, 37 in which it was acute yellow atrophy of the liver, 10 in which the causes were general, and 39 of miscellaneous character. He also reports some animal experiments, and concludes that in the few fatalities where all other causes can be ruled out, death is due to acute renal insufficiency, not to cerebral hypersensitiveness. He

therefore urges exact technic, judicious dosage, careful study of the urine, avoidance of combined treatment, and special observation of temperature in every case.

The Hypodermic Syringe. By GEORGE L. SERVOSS, M.D. Newark, N. J.: Physicians Drug News Company. 1914.

This book, according to the author's preface, aims to replace Bartholow's "Hypodermic Medication," now out of print. It describes, in a series of seventeen chapters, the varieties of the hypodermic syringe, the technic and indications of its use and the various substances that may be administered by its means. The latter include not only drugs and chemicals, but antitoxins, sera, and bacterial vaccines. The subject of local and spinal anesthesia is also included. The hypodermic syringe is perhaps the most useful instrument in medicine today and seems likely to become even more prominent an agent of progress in the medicine of the future. This volume is a convenient guide in the useful administration of hypodermic therapy.

A Handbook for the Post-Mortem Room. By ALEXANDER G. GIBSON, D.M. (*Oxon.*), F.R.C.P. (Lond.). London: Henry Frowde and Hodder and Stoughton. 1914.

This small volume in the series of Oxford Medical Publications is an excellent concise English manual for the performance of autopsies. The technic described for the removal of organs is a modification of the classic Virchowian method, not the method of removal *en bloc* often seen in this country. The book is illustrated by 13 small cuts in the text. It should prove a useful guide for students and pathologists.

Treatment of Chronic Leg Ulcers. By EDWARD ADAMS, M.D. New York: The International Journal of Surgery Company. 1914.

This monograph, as its sub-title indicates, aims to be "a practical guide to the symptomatology, diagnosis, and treatment" of chronic ulcers of the legs. The different types of ulcer are briefly described and the appropriate treatment of each is outlined. There is also a section on the surgical treatment of varicose veins. The book should prove a useful manual of reference for practitioners.

Sciatica. A Fresh Study. By WILLIAM BRUCE, M.A., LL.D., M.D. (Aber.). New York: William Wood and Company. 1913.

This monograph by Dr. Bruce of Dingwall, N. B., is an exposition of his theory of the pathology of sciatica, which he regards not as a neuritis, but as an inflammatory affection of the hip-joint. After a brief historic survey of the views of Gowers, Lawson and others, he explains his own opinion, and the evidence which has led him to it. The treatment, based on his theory, is rest, fixation, diet, baths, and radiotherapy. A first appendix, illustrated with three full-page plates, presents the anatomy of the sacral plexus and its relation to the hip-joint. A second appendix, constituting half the book, and illustrated with fifteen full-page plates, consists of a brief record of 691 cases of sciatica observed by the author at Strathpeffer from May, 1889, to October, 1912. There is also a bibliography of 23 titles. Whatever proves to be the true ultimate pathogenesis of sciatica, this fresh study of it is a valuable contribution to the literature.

Lectures on Dietetics. By MAX EINHORN, professor of Medicine at the New York Postgraduate Medical School. New York: Paul B. Hoeber. 1914.

This volume consists of the stenographic record of the author's 8 lectures on diet, and essentially covers the field of his previous monograph on "Diet and Nutrition," but with greater variety and more practicality. There are two full-page illustrations and one cut in the text. The book should prove a serviceable manual for practitioners.

Radium Therapeutics. By N. S. FINZI, M.B. (Lond.), M.R.C.S., L.R.C.P., L.S.A. London: Henry Frowde and Hodder and Stoughton. 1913.

The small manual on radium by Dawson Turner, which was reviewed in the issue of the JOURNAL for May 18, 1911 (Vol. clxiv, p. 723), was the first reliable publication of its kind in English. It was concerned chiefly with the physics, and only secondarily with the therapeutics of radium. After a period of three years, during which radium has had an extensive experimental application in treatment, this monograph by Finzi, in the series of Oxford Medical Publications, appears as a legitimate supplement and continuation of Turner's work. After a brief introductory chapter, descriptive of the properties of radium, it is devoted almost wholly to a consideration of its methods of administration, action, dosage, indications, and uses in a variety of affections. An appendix contains descriptions of uranium, thorium, mesothorium, and other radio-active substances. The book is illustrated by 25 figures in the text. It is conservatively written and in the present popular over-enthusiasm about radium is a wholesome guide for the profession as to what may really be expected from this new therapeutic agent.

The Johns Hopkins Hospital Reports. Monographs. New series.

No. I. Free Thrombi and Ball-Thrombi in the Heart. By J. H. Hewitt, M.D.

No. II. Benzol as a Leucotoxin. By Lawrence Selling, M.D.

No. III. Primary Carcinoma of the Liver. By M. C. Winternitz, M.D.

No. IV. The Statistical Experience Data of the Johns Hopkins Hospital, 1892-1911. By Frederick L. Hoffmann, LL.D., F.S.S.

No. V. The Origin and Development of the Lymphatic System. By Florence R. Sabin. Baltimore: The Johns Hopkins Press. 1913.

These five large pamphlets represent the beginning of a new series of publications by the Johns Hopkins Hospital. They are all monographs of research.

Dr. Hewitt, from his study of cardiac thrombosis, concludes that no practical treatment different from that ordinarily employed in mitral stenosis with insufficiency can be recommended.

Dr. Selling, from his studies on the degeneration and regeneration of the blood and hematopoietic organs, concludes that benzol is a powerful leucotoxin, destroying the white cells of the circulating blood and the parenchymal cells of the hematopoietic organs. Myeloid tissue is injured more than lymphadenoid tissue, and polynuclear leucocytes more than lymphocytes. The erythroblastic tissue of the bone marrow is destroyed, but the circulating erythrocytes are injured relatively little. By repeated injections of benzol, the myeloid and the lymphadenoid tissues can be rendered almost wholly aplastic.

Dr. Winternitz reports four cases of primary carcinoma of the liver. It is rare, occurring only in from 0.03 to 0.3 per cent. of all autopsies. It occurs most frequently in adult males, and clinically is difficult to differentiate from cirrhosis.

Mr. Hoffmann's elaborate statistic study concludes with high praise for the excellent record system of the Johns Hopkins Hospital. He believes, however, that the Bellevue Hospital method of classification is preferable.

Miss Sabin, from her embryologic study of the morphology of the lymphatic system, finds that lymphatic capillaries are tubes of endothelium, derived from the veins, and having the same relation to tissue spaces as have the blood capillaries.

Time and the Timeless. Songs of Shadow and of Hope. By a Physician. London: Henry J. Glaisher. 1914.

This is a small, paper-covered volume of verse by a physician who, though nameless is apparently a Scotsman. It consists of a number of brief poems and one somewhat longer piece, "To a Brother Physician." So far as these deal with medical topics (as in the unfortunate lines on "This Little Bistoury"), they can hardly be called successful. Indeed Mr. Kipling is probably today the only living man who could make poetry out of such material. Some of the other verses, however, apart from professional experience, have a more genuinely lyric character. The best of these, "In the Fratry of Furness Abbey," may serve as an example of all.

"Thy walls are desolate, and where
The gownèd monks sat, row by row,
Tall trees their shadowy foliage throw
And toss their branches high in air.

"The broken pillar, the noble arch,
The square red stones, pil'd huge and high,
As rugged time-worn tokens lie,
Marking the Day's triumphant march.

"No longer shut in walls of stone
The highest thoughts of men are pent,
But, bursting earthly tenement,
They claim the heavens for their own."

Communicable Diseases. By J. W. Kerr, Assistant Surgeon-General, and A. A. Moll, A.B. Washington: Government Printing Office. 1914.

This volume, prepared by direction of the surgeon-general and issued as a public health bulletin (No. 62) by the Treasury Department, is an analysis of the laws and regulations in force in the United States for the control of communicable diseases. It is intended as a sequel to bulletin No. 54, which described and commented upon the provisions governing health organization in this country. The first portion consists of a discussion of the principles involved in the prevention of disease; the second is an appendix of miscellaneous matters; the third presents the text of federal, state, and territorial laws on the control of disease. The book is a valuable repository of important information, and should prove useful to students of preventive medicine.

The Anatomist's Notebook. A Guide to the Dissection of the Human Body. By A. Melville Paterson, M.D., Edin., F.R.C.S., Eng. London: Henry Frowde, and Hodder and Stoughton. 1914.

This volume, in the series of Oxford Medical Publications, is essentially a dissecting syllabus. The text provides a summary of structures to be investigated, and the intervening blank pages afford opportunity for laboratory notes. There are 26 outline diagrams for original drawings. The book should be of convenient value to elementary and advanced students of anatomy.

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THE NEUROLOGICAL INSTITUTE OF NEW YORK.

THE fourth annual report of this institution, recently issued, shows a continuation and expansion of the excellent work in which it has been engaged since its organization and contains much that is of practical as well as scientific interest. The real need in a large city of such a hospital, affording the most skilled modern treatment in its special department, is shown by the material increase in the number of patients cared for; nearly 500 more having been admitted to the hospital wards, and nearly 600 more to the dispensary, than in 1912. Considering the very limited capacity of the institution, the number of treatments given has been remarkable for during the past year the individual treatments in the dispensary alone amounted to nearly 30,000. The order of popularity of these, it is stated, has been: electrotherapy, hydrotherapy and massage. Mechanotherapy, was the least popular of all.

In preceding reports mention was made of the good effects of the hospital treatment of persons merely threatened with some mental disorder. A continuance of these beneficial results has been noted, and it is felt that the institute, if it had done nothing else, has justified its existence by the good it has done in this way. By this prophylactic management the development of insanity has frequently been arrested, and individuals so threatened have been enabled to return to their work after a short time, instead of being condemned to a long period of mental disturbance. In two diseases the benefits of the special equipment and methods employed have been particularly manifested, chorea and poliomyelitis. In the former, isolation and quiet have proved very successful, and in the after-treatment of poliomyelitis admirable results in the way of prevention of permanent paralysis are accomplished by the judicious use of massage and electricity—a form of treatment to which scant attention is apt to be given in general hospitals.

Particular attention is called to the report of operations performed during the year. The skull was opened thirty times for various diseases, with a mortality of four.

A large portion of the report is taken up with the work of the department of social research. The most important of its problems is stated to be that of personal advice and instruction. The results of the examinations belong to the physicians, who determine the diagnosis and treatment; but in a large number of instances the explanation and oversight of the treatment prescribed are entrusted to the examiner, who has made the long personal inquiry and has an intimate knowledge of the factors in the case on which successful treatment depends. As to the problem of the individual, the more intimate phases of the work are found hard to describe without violating the confidences of the examination room, but illustrations are given which are typical of the ordinary run of cases. The following are the problems mentioned, illustrative cases being cited in each: 1. Problems of fear in young men and women. These frequently present themselves in the form of slight alterations in physical condition, associated with unreasonable concern about health, mental adequacy, or business or social success. 2. Problems of waywardness in childhood—sometimes due to inherited weakness and sometimes merely the accompaniment of some passing disorder; or they may be traced directly to bad care or to a bad example in the home. 3. Problems of waywardness in youth. Flagrant waywardness of conduct has been brought to the attention of the service much more commonly in the case of young women. 4. Problems of retardation and of special guidance. Whenever retardation in school studies is due to settled deficiency it is regarded as important to discover it in time and to obtain some clear idea of its nature and possible consequences; and equally important to estimate

clearly the nature of any special aptitude and establish the conditions under which it may be developed. 5. Problems of special defect. The largest number of such cases have been in those suffering from some form of speech defect. During most of the year a class has been conducted in speech training—individual lessons being given; and in every instance where the attendance has been regular very satisfactory progress has been made. Very many of the cases referred to this service were accompanied by a definite request for some estimate of the patient's general efficiency, and in the department it has been found that success or failure in dealing with patients commonly turns on an accurate estimate of their efficiency. At first this situation was met by selecting from the growing literature of tests any that seemed adapted to the particular case under observation, but gradually a number were selected as being particularly suitable for a neurological clinic. During the past year this work with tests has taken the form of trying out a set of tests for the pre-adolescent period, and this has been given in its complete form to over 250 individuals and in partial experimental form to as many others. In the report there is presented the scheme followed in the arrangement of tests for all the growth periods, as well as a table of tests selected, in accordance with this scheme, for the pre-adolescent period.

The hope is expressed by the medical board that sooner or later the scope of the work of the institute will be greatly expanded. It should be its aim, to discover the causes of nervous and mental diseases, to suggest remedies which will affect the race as well as the individual, and to disseminate such knowledge. To attain this goal, part of the working force must be directed to pure science, which would demand an equipment far different from that at present possessed. Such an institute, to which physicians and all concerned with education and public health would naturally turn, as they turn now in the matter of infectious diseases to the Rockefeller Institute, would be an incalculable benefit to the community.

Maine Health Ordinance.—The Maine State Board of Health recently adopted a regulation, which became operative on June 1, forbidding the use of common drinking-cups and roller-towels in schools, hotels, restaurants, railroad trains and other public places and conveyances.

THE MEXICAN SITUATION.

During the active progress of mediation at the conference now in session at Niagara Falls, Canada, hostilities continue between the contending Mexican factions. Tampico has been seized by the constitutionalists under General Villa, and has been made a basis of further operations against Mexico City. Meantime the United States forces hold a position of neutrality in occupation of Vera Cruz. General Funston, who is in command at that city, reported on May 22 a sick rate of 1.49% among the soldiers and 1.46% among the marines quartered there. Smallpox has already been almost wholly eradicated from the city. The United States has a total fleet of 34 warships lying off Vera Cruz and 17 off Tampico.

In the issue of the Journal for May 21, we referred editorially to the absence of the hospital ship *Solace* from Mexican waters during its voyage to New York for transportation and repairs. It appears that at least one other hospital ship is much needed by the navy.

"The Navy Department has had under consideration the purchase of a vessel in New York suitable for the purpose, but the owners of the ship have demanded $1,000,000,—a price regarded by the department officials as excessive. It is hoped that further negotiations with the owners will result in a reduction, but there are some naval officers who believe that the necessities of the case justify its immediate purchase, as a delay might result in increasing the number of deaths. The vessel in question would require an expenditure of $125,000 to fit out as a hospital or ambulance ship.

"Two vessels are declared necessary—one to remain in the neighborhood of Vera Cruz while the other is transporting the sick and wounded away from the tropics. Unless this is done, as is recommended by the surgeon-general of the navy, with the approval of the army medical officers, it is apprehended that there will be disasters which will arouse public criticism of the Administration. Secretary Daniels believes that there is no necessity for immediate action, and has informed his assistants in the Navy Department that he does not propose to be held up by ship owners because of the apparent necessity for a special type of ship."

It is to be hoped that neither motives of false economy nor an undue sense of security in the present situation may be allowed to prevent the immediate obtainment by the navy of a proper ship for the purposes required.

JULIUS BETTINGER "(L'ANONYME DU PALATINAT)".

FOR half a century or more the identity of the physician who, under the above title, contributed so much to the knowledge of the experimental inoculation of syphilis remained a complete mystery. It was in 1855 that the experiments were reported to the Medical Society of the Palatinat according to a recent article in *La Chronique Médical*. The experiments proved irrefutably the contagious properties of specific blood, as well as secondary specific lesions. This was at the time that Ricord held diametrically opposite views on this subject. It was, according to this article, Hoffmann's researches into the question of the infectivity of specific blood and his study of the older literature pertaining to this question which led him to the discovery of the author of these experiments heretofore shrouded in mystery. In the *Aertzlicher Intelligenz-Blatt* for 1856, the article goes on to say, he found the report of the proceedings of the Society of the Palatinat pertaining to this work. ("Rapport Médical pour le Palatinat rédigé d'après les Rapports Médicaux de Cantons.") The identity of the author was made certain by a communication from the son of Bettinger to Hoffmann.

Bettinger was born in 1802 at Zweibsucken, and studied medicine at Wurzbourg; at 22 years of age he was named assistant at the Cantonal Hospital at Frankenthal in the Palatinat. It was here that in later years his communication regarding the inoculability of specific blood and secondary lesions was made. In 1836 he was created director of the Cantonal Hospital; in 1856, one year after the anonymous communication had appeared, he received the Cross of the Order of St. Michael, without there being any apparent explanation of this honor. In 1878, his 50th anniversary of service in the Palatinat was celebrated, and he was the recipient of many tokens of respect and esteem for his life-long service and high attainments. He resigned in 1885 and died in 1887, having preserved his pristine vigor and strength of mind and body till nearly the end, also having kept the authorship of his chief work secret. It is of exceeding interest that Hoffmann, one of the discoverers of the cause of syphilis, should be the observer to throw light on the long puzzling question of the identity of "l'Anonyme du Palatinat."

ANOTHER MARINE TRAGEDY.

THE sinking of the Canadian steamship *Empress of Ireland*, off Rimouski in the Gulf of St. Lawrence early on the morning of May 29, with a loss of very nearly 1000 lives, vividly recalls the *Titanic* disaster of April 15, 1912. The *Empress*, while lying to in a fog, was rammed amidships about 2 a.m. by the Norwegian collier *Storstad*, and sank in 14 minutes. Many passengers were crushed to death in their berths by the impact of the collision. Many others were drowned when the ship went down. There was not time to man but a few lifeboats. About 400 persons were picked up by the *Storstad* and by the *Lady Evelyn*, which was summoned by wireless to the scene of disaster. Some of those rescued subsequently died of shock, exposure, or injuries, and many of the survivors are suffering from fractures and other trauma. Among those who perished was Dr. M. A. Lindsay, pathologist at the Victoria General Hospital, Halifax, N. S., who was on his way to England to be married.

Especial praise is given by surviving passengers to the ship's surgeon of the *Empress*, Dr. James F. Grant, of Victoria, B. C., a graduate of McGill University Medical School in 1913. Coming on deck from his cabin after the collision he coolly directed the embarkation of passengers and assisted in the launching of several lifeboats. When the vessel sank he swam to one of the *Storstad's* boats, which had put out, superintended the rescue of many persons from the water, and subsequently for hours aboard the *Storstad* devoted himself to the relief and treatment of the injured. Amid the melancholy reflections evoked by such a tragedy, it is an encouragement to find that the fine ideals of valor and service were so well maintained by this young representative of our profession.

MEDICAL NOTES.

VON BEHRING'S NEW DIPHTHERIA SERUM.—Report from Berlin on May 23 announces that von Behring's new toxin-antitoxin diphtheria serum is soon to be placed on the market for use as a durable immunizing agent against diphtheria. Excellent results from its use have been reported in the German medical journals.

A NEW INDIAN SCHOOL OF TROPICAL MEDICINE.—A recent item in the *Scientific American* calls

attention to the new Calcutta School of Tropical Medicine, whose corner-stone has just been laid by the lieutenant-governor of Bengal.

"This school will have unique advantages for carrying on its special line of work, viz., the study of tropical diseases, with a view to finding more accurate methods of diagnosis and treatment. Such diseases are responsible for more than one-third of the mortality in the city of Calcutta. From the consul's report it appears that the new institution aims to become an international centre in its particular field; students will be welcomed from all parts of the world, and medical research institutions in other countries are urged to establish scholarships at the Calcutta school, or to provide otherwise for sending research students to enjoy the advantages it offers. Inquiries should be addressed to Lieutenant Colonel Leonard Rogers, I. M. S., Medical College, Calcutta."

BUBONIC PLAGUE IN HAVANA.—Another case of bubonic plague was reported at Havana on May 25, making a total of 20 since the outbreak of the present infection. There have thus far been three deaths of the disease. The city is quarantined.

BOSTON AND NEW ENGLAND.

SCARLET FEVER AT MILTON ACADEMY.—The epidemic of scarlet fever at Milton (Mass.) Academy, which we noted in last week's issue of the JOURNAL, has extended. There are now 30 cases among students and the institution has been closed and quarantined.

APPEAL OF BABY HYGIENE ASSOCIATION.—In a recent bulletin, the Boston Milk and Baby Hygiene Association has appealed to the public for $2000 to provide six additional nurses for carrying on its work during this summer.

A CENTENARIAN.—In the issue of the JOURNAL for June 20, 1912 (Vol. clxvi, p. 943), we chronicled the supposed centennial anniversary of Mrs. Benjamin de St. François, of Medford, Mass., said to have been born on June 12, 1812, at Chambley, near St. Francis, P. Q., Canada. We regret exceedingly to learn of her recent death, on May 21. Of her seven children, she is survived by three aged daughters; also by three grandchildren, and three great-grandchildren. She had been a widow since 1850.

WASSERMANN AND SCHWARTZ TESTS IN BROOKLINE.—The Brookline (Mass.) Board of Health has just announced, in a circular letter to physicians, its preparedness to do Wassermann and Schwartz tests free of charge.

"The Brookline Board of Health desires to call to the attention of physicians the fact that it will make free of charge for residents of Brookline the Wassermann test for syphilis and also the corresponding test for gonorrhea, the so-called complement fixation test.

"The necessary outfits for these examinations may be had at the Board of Health Laboratory in the Court House on Prospect Street. Specimens for the test for syphilis may be sent to the Laboratory on any week day except Friday and Saturday. For the blood test for gonorrhea a special arrangement must be made by communicating with the Laboratory.

"Physicians are required to fill out a card giving certain information in regard to the case, but they need not give the name of the patient, provided they will sign a statement that the patient is a resident of Brookline, and will substitute letters or numbers for the name to identify the specimen. The same letters or numbers should be used for subsequent specimens from the same individual.

"For the present, these examinations will be made at the Laboratory of Neuropathology at the Harvard Medical School.

"The Board of Health is undertaking to furnish these examinations because it believes that the more frequent use of the tests will result in preventing the spread of these serious communicable diseases and will also enable physicians to recognize and successfully treat syphilitic lesions of many different organs of the body."

The remainder of the circular describes the uses and interpretation of the Wassermann reaction and the complement fixation test for gonorrhea, and gives instructions to patients and directions for collecting blood for the tests.

BOSTON CITY HOSPITAL TRAINING SCHOOL.—The annual graduating exercises of the Boston City Hospital Training School for Nurses were held in the surgical amphitheatre on Friday afternoon, May 29. The principal address was made by Mayor Curley, who distributed diplomas to 43 graduating nurses.

HOSPITAL BEQUESTS.—The will of the late Frances H. Curtis, of Jamaica Plain, Mass., which was filed on May 23 for probate in the Suffolk Registry, contains a bequest to the Faulkner Hospital of $8000 to constitute a fund for the maintenance of a free bed to be named after George S. Curtis.

The will of the late James Sagebury, of Arlington, Mass., which was filed on May 26, at

the probate court in East Cambridge, Mass., contains contingent bequests of about $5000 each to the Infants' Hospital, the Children's Hospital, the Samaritan Hospital, the Lying-in Hospital, and the Woman's Charity Club Hospital, of Boston, and the Free Hospital for Women, of Brookline, Mass.

MASSACHUSETTS MEDICAL SOCIETY.—The one hundred and thirty-third annual meeting of The Massachusetts Medical Society will be held in Boston on Tuesday and Wednesday of next week, June 9 and 10. The sessions will be at the Copley Plaza Hotel and the Massachusetts General Hospital. The Shattuck Lecture will be delivered by Dr. Herbert C. Moffit, of San Francisco, and the annual discourse by Dr. Horace D. Arnold, of Boston. The annual dinner will be at 7 p.m. on June 10.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending May 26, 1914: Diphtheria, 47, of which 1 was non-resident; scarlatina, 120, of which 25 were non-residents; typhoid fever, 10, of which 2 were non-residents; measles, 144; tuberculosis, 68, of which 2 were non-residents.

The death-rate of the reported deaths for the week was 15.00.

NEW YORK.

MORTALITY FOR THE WEEK ENDING MAY 23, 1914.—There were 1592 deaths and a death-rate of 14.88 per 1000 of the population reported during the past week as against 1572 deaths and a rate of 15.27, an absolute increase of 20 deaths, and a decrease of .39 of a point in the weekly rate, equivalent to a relative decrease of 42 deaths.

The following causes showed an increased mortality: Measles, diphtheria and croup, typhoid fever, diarrheal diseases under five years of age, tuberculous diseases other than pulmonary and violence. Those causes showing a decreased mortality were scarlet fever, influenza, acute respiratory diseases and pulmonary tuberculosis. The mortality from whooping cough, organic heart diseases, Bright's disease and nephritis and nervous diseases were approximately the same as that of last year.

Viewed from the point of age grouping the mortality of infants under one year of age was slightly in excess of the figures of last year, while that of infants between one and five years was approximately the same. The mortality between five and sixty-five years of age was decreased somewhat, and that of sixty-five years of age and over was considerably increased.

The death-rate for the first 21 weeks of 1914 was 15.33 per 1000 of the population as against 15.55 for the corresponding period of 1913, a decrease of .22 of a point.

HONOR FOR DR. JELLIFFE.—Dr. Smith Ely Jelliffe, of New York, has been made a corresponding member of the Paris Neurological Society.

THE MENACE OF CANCER.—In view of the undoubted increase in the mortality from cancer, the Department of Health is seeking in every way to educate the general public regarding the nature of this terrible malady and as to the surpassing importance of early recognition and treatment. It is usually not known that the general death-rate of persons over 40 years of age *is higher* now than it was thirty years ago. In this increase, in addition to diseases of the kidneys, heart and blood vessels, cancer plays a large part.

While the ultimate cause of cancer is not yet known, much has been learned about conditions giving rise to the disease. Among these some form of chronic irritation ranks first. Physicians have also come to recognize what are termed "pre-cancerous" conditions." Prompt surgical attention to such conditions will do much to prevent cancer. Competent surgery in the early stages means a large percentage of cures, and the earlier the better. Hope lies chiefly in the first operation. Delay means not simply danger, but as a rule, inevitable death.

X-rays and radium are often valuable adjuncts to surgical treatment, but alone they are useful only in the skin cancers and other superficial forms. In Europe, where the popular furore about radium appeared earlier than in this country, great numbers of dishonest and fake, money-getting, radium-cure establishments have made their appearance. There is danger of the same thing occurring here, unless the public heed the warnings of competent authorities.

The evidence so far collected on early cancer also brings a message to the people who seek help in the later stage of cancer. Although the chances of a cure here are less, the disease in many instances is by no means hopeless. Even when the hope of cure is remote, surgery looks

toward the prolongation of useful life and the relief of much suffering.

Not only the public, but the medical profession, needs education with more reliable data as to the results of early diagnosis and treatment. The diagnosis of cancer, in its earliest stages, when treatment gives the very best results and the greatest number of cures, is more uncertain, and the treatment in this stage, although very much less dangerous, is a more delicate surgical procedure.

Typhoid in Brooklyn.—On May 23 the Health Department issued an official report in regard to the Mercer family in Brooklyn, two children in which became seriously ill after antityphoid vaccination. This was done by the family physician, at the request of Mr. Mercer, who was suffering from typhoid fever and later succumbed to the disease, and the vaccine was procured from the Health Department office in Brooklyn. The report states that the children are affected with typhoid fever, but that this must have been contracted before the vaccination, and not as a result of the latter. One of the children was thought to have cerebrospinal meningitis, but it was found that the symptoms pointing to this were due simply to pressure from cerebrospinal fluid. No meningicocci were found in the fluid, and the removal of some of the fluid by the lumbar puncture markedly benefited the patient. A third child, as well as the mother and an aunt, who were vaccinated at the same time, are now entirely well.

Investigation by Health Department.—A study has recently been made by the Health Department to ascertain what proportion of secondary cases follow the various contagious diseases when the patients are treated at home and when they are removed, with the following results: Diphtheria, quarantined at home, 13%; removed to hospital, 1%. Scarlet fever, quarantined at home, 9%; removed to hospital, 6%. Measles, quarantined at home, 14%; removed to hospital, 4%. A plan has been developed for the better supervision and treatment of cases of whooping-cough by the hospitals and dispensaries of the city. The department is taking up the matter with the Associated Out-Patient Clinics and the hospitals, and it is hoped that before long adequate facilities for the care of such patients will be provided.

Current Literature

Medical Record.

May 16, 1914.

1. *Friedman, G. A. *The Value of Polycythemia for the Diagnosis of Duodenal Ulcer, Based upon Sixteen Operatively Demonstrated Cases.*
2. Maloney, W. J. M. A., and Sorapare, V. E. *Note on Mechanical Support for the Feet in Locomotor Ataxia.*
3. Solenberger, A. R. *Prophylaxis of Laryngeal Tuberculosis.*
4. Kemble, A. *Chronic Prostatitis.*
5. Kitchen, J. M. W. *Bacteria and Bacterial Proliferation in Dairy Products, Related Problems and Their Solution.*
6. Birdsall, E. *The X-ray Treatment of Myoma.*
7. Crothers, T. D. *Voice and Manners in Medical Practice.*

1. Friedman has found polycythemia of value in the differential diagnosis of duodenal ulcer, especially from gastric ulcer and chronic appendicitis. There is no pathognomonic symptom of duodenal ulcer, he says. The history is important, especially a history of hunger pain, late pain and night pain, but atypical histories are common. The x-ray is very valuable, but the value of this, too, is limited. The data obtained by analysis of the duodenal contents is of secondary importance. In his cases, in all of which diagnosis was confirmed at operation, he found polycythemia almost constant in non-hemorrhagic duodenal ulcer, and in many instances it was the only distinctive feature. The average hemoglobin in his series was 90%, the average red count 5,921,000, the average white count normal. In gastric ulcer and chronic appendicitis a varying degree of secondary anemia is the rule. [L. D. C.]

New York Medical Journal.

May 16, 1914.

1. Collins, J. *Salvarsan a Valuable Treatment of Brain Tumor Symptoms Dependent upon Syphilis.*
2. Bandler, S. W. *Constitutional Dysmenorrhea.*
3. Rhein, J. H. W. *Apraxia in Relation to Aphasia.*
4. Weisenburg, T. H. *Anarthria and Its Relation to Aphasia.*
5. Pisek, G. R. *The Need of Hospitals for Whooping Cough in New York City.*
6. Robertson, W. E. *Kidney Disease, with Special Reference to the Test for Functional Capacity.*
7. Braddock, C. S., Jr. *Tropical Malaria and Its Causes.*
8. Haskin, W. H. *Oral Sepsis of Dental Origin.*
9. Boise, E. *Shock.*
10. Graham, H. S. *Causes of Gastro-intestinal Stasis.*
11. Stern, S. *Alcohol Acidemia.*
12. Smith, G. R. *Uterus Duplex cum Vagina Bipartita.*

The Journal of the American Medical Association.

May 16, 1914.

1. *Patrick, H. T. *The Symptomatology of Trifacial Neuralgia.*
2. *Nichols, H. J. *Syphilis as a Public Health Question.*
3. Nixon, P. I. *Chaparro Amargosa in the Treatment of Amebic Dysentery.*

4. YAWGER, N. S. *Experience with Crotalin at the Oakbourne Epileptic Colony.*
5. WOLFSOHN, J. M. *The Normal and Pathologic Physiology of the Visceral Nervous System, with Especial Reference to Vagotony and Sympathicotony. A Review.*
6. BROWN, G. V. I. *The Surgical Treatment of Post-operative Palate Defects.*
7. OMAN, C. M. *Medical and Surgical Work on Board a U. S. Battleship.*
8. *STEVENS, W. E. *The Comparative Value of Modern Functional Kidney Tests.*
9. PRICE, G. E. *A Case of Tay-Sachs Amaurotic Idiocy with a Positive Wassermann Reaction.*
10. MELTZER, S. J. *How Deep Should the Tube be Introduced in Intratracheal Insufflation?*
11. MILLER, T. G. *The Cultivation of the Plasmodium Falciparum in Vitro.*
12. MCLAUGHLIN, A. J. *Results of an Improved Public Water-Supply at Cohocs, N. Y.*
13. DAVISON, C. *The Treatment of Fractures by Autoplastic Bone Pegs.*
14. WILLSON, R. N. *The Incidence of Fibrinous and Bronchocatarrhal Pneumonia in the Philadelphia General Hospital.*
15. PLOTZ, H. *The Etiology of Typhus Fever (and Brill's Disease). Preliminary Communication.*
16. FARR, R. E. *Modification of the Brophy Mouth-Gag.*
17. UNGER, M. *A New, Double, Self-Retaining Nasal Speculum.*

1. Patrick finds pure trifacial neuralgia about evenly divided between men and women, and not more common in women, as Dana has believed. As to age, it is more common in the degenerative period of life. More than half of the author's cases have been between 40 and 60 years of age. The impression exists that these patients are of the neurotic type, but Patrick does not find this borne out. Only one of his 220 cases really contracted the morphine habit. The right side is always more commonly affected than the left. The author offers no explanation for this. Patrick differs with most other writers in regard to the location of the pain. He believes the second division, not the first, is the most common location. The pain is essentially short-lived. Any pain about the face, forehead or temple which is a steady ache, which is continuous for a half hour or more, is not trifacial neuralgia. The disease is essentially chronic with no tendency to recover. The element of tic or motion is not a part of true trifacial neuralgia. Syphilis as an etiologic factor is noticeable by its rarity. Patrick does not believe in the toxic theory of its cause. This article is of very practical value and worth reading.

2. Nichols believes that a strictly medical campaign against syphilis is neither practical nor desirable. A modified medical campaign is both practical and necessary. The prevalence of the disease is still largely a matter of conjecture. The most hopeful outcome of all the recent work on syphilis is the possibility of an early diagnosis and radical cure. Our ideas about the efficiency of treatment and a standard of cure are more definite but need further elucidation. Syphilis is in most cases a preventable disease and this fact is an additional warrant for penalizing those who contract it.

8. Stevens favors the phloridzin test as more accurate than the phenolsulphonephthalein test in kidney function. It also takes less time.

[E. H. R.]

THE LANCET.

MAY 2, 1914.

1. ORMEROD, J. A. *The Lumleian Lectures on Some Modern Theories Concerning Hysteria. Lecture II.*
2. *COLE, L. G. *The Diagnosis of Post-Pyloric (Duodenal) Ulcer by Means of Serial Radiography.*
3. *TIDY, H. L., AND PHILLIPS, E. *Acute Lobar Collapse of the Lung.*
4. MUMMERY, P. L. *Pain after Operation for Internal Piles and Its Prevention.*
5. KRAUS, O. *The Early Detection of Diabetes by a Simple Method of Estimation of the Blood Sugar.*

2. Cole, in a paper illustrated with some very poor x-ray plates, describes his method of making serial x-ray photographs and its value in the diagnosis of post-pyloric or duodenal ulcer. This method is now too well known to require comment.

3. Tidy and Phillips describe a case of acute lobar collapse and discuss this condition. It is due to inaction of the muscles of respiration or blockage of the bronchioles from capillary bronchitis. It may explain cases of pleural effusion without corresponding displacement of mediastinum or heart.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

MAY 2, 1914.

1. *STEWART, P. *The Diagnosis and Treatment of Cerebro-spinal Syphilis Including Tabes and General Paralysis.*
2. ARMSTRONG, H. *On Some Clinical Manifestations of Congenital Syphilis.*
3. BOYD, W. *The Clinical Importance of the Cerbrospinal Fluid.*
4. *SMITH, W. M. *Meningitis in Children.*

1. Stewart believes that before coming to any definite conclusion concerning prognosis or course of treatment of any case of cerebro-spinal syphilis prolonged observation and study are necessary. Only cases in the early stages should be selected for radical treatment before the cortex has become profoundly degenerated. He believes in a combination of intravenous, intraspinous, intracranial treatment. While possibility of a cure is slight, alleviation and arrest to a greater or less degree may be possible in those cases. The writer presents details of cases and methods used.

4. Smith discusses the various forms of meningitis in children and their diagnosis and treatment. The whole subject is clearly shown in tabular form.

[J. B. H.]

THE PRACTITIONER.

MAY, 1914.

1. *SAVAGE, G. H. *Syphilis and Insanity.*
2. *POWELL, R. D. *The Use of Digitalis in Heart Diseases.*
3. *CAMMIDGE, P. J. *Glycosuria and Its Relation to Disease of the Pancreas.*
4. *BLAXLAND, A. J. *Some Aspects of Gall-stone Disease.*
5. LETT, H. *Thread Worms in Relation to Appendicitis.*
6. *CHISOLM, R. A. *Anemia in Childhood.*
7. SMITH, S. *Random Notes in a Children's Casualty Department.*
8. FOX, R. F. *The Choice of Summer Health Resorts.*
9. CHAPMAN, C. W. *Recent Work on Diseases of the Heart.*
10. HERNAMAN-JOHNSON, F. *The Treatment of Severe Menstrual Pain and Excessive Bleeding by X-rays.*
11. THORNE, W. B. *Toxemia and Autogenous Vaccines.*
12. FOTHERGILL, C. F. *Treatment of Neurasthenia.*
13. FLETT, A. B. *The Phylacogen Treatment of Rheumatism.*
14. ELDER, G. T. D., *and* DANKIELS, D. *Case with Comments. Pancreatic Hemorrhage.*

1. Savage discusses in a general way the relationship of syphilis to insanity in its various forms and comes to the natural conclusions that syphilis may be a cause of congenital mental defects and undoubtedly is the cause of general paralysis and other similar conditions. He believes in treating such patients with salvarsan, but does not hold out much hope as to a cure.

2. This is a good review of the subject of digitalis and its value in various forms of heart disease, but presents nothing new.

3. Cammidge, in a long paper, takes up the relation of glycosuria to disease of the pancreas. He discusses at length the work of other investigators and the historical side of this complex subject and its physiology and pathology. He believes that in the case of death from persistent glycosuria, pathological changes can be demonstrated in the pancreas in 70-80% of the cases; it does not follow that lesions of the pancreas are the primary cause of the condition in that proportion of cases. He describes his own investigations on this subject and gives the details of the various tests he has elaborated. He urges early treatment along scientific lines for every case of glycosuria, even of an apparently mild and simple character. It is pure empiricism to place a patient with glycosuria on a carbohydrate-free diet without further investigation. Other facts concerning metabolism in general should be ascertained in every such case.

4. Blaxland discusses gall-stone disease from various points of view as to symptoms, diagnosis, treatment, results of operation, etc. His paper is based on a study of 116 consecutive cases.

6. This is a good clinical study of the various causes of anemia in childhood and their cure and prevention. [J. B. H.]

Münchener Medizinische Wochenschrift.

No. 17. April 28, 1914.

1. Abderhalden, E., and Ewald, G. *Does the Serum of Rabbits Contain Proteolytic Ferments after the Intravenous Injection of Their Own or Other Rabbits' Serum Which Were Not Present before Injection?*
2. Lichtenstein, S., and Hage. *The Recognition of Specific Ferments by the Dialysis Method.*
3. Freymuth, F. *The Clinical Value of Abderhalden's Dialysis Method.*
4. *Nakano, J. *A Case of Hemochromatosis with a Clinical Picture Simulating Addison's Disease.*
5. Riebold, G. *Are Diphtheria Bacillus Carriers Infectious for the Community?*
6. Franck, O. *Experiences with Direct Tracheotomy.*
7. Hohlweg. *Polyuria in Carcinoma of the Breast.*
8. Hufschmidt, A. *Death from Spontaneous Cerebral Hemorrhage in Hemorrhagic Diathesis.*
9. Brandes and Buschmann, P. *Instruments for Electrical Stimulation During Surgical Operations.*
10. Alter. *The Simplification of Serological Methods.*
11. *Schneider, K. *The Treatment of Delirium Tremens.*
12. Schmidt-Ottmann, F. *Cymarin, a New Cardiac Tonic.*
13. Oloff. *Karl Völckers.*
14. Kaup, J. *Instruction in Social Hygiene at the University of Munich and the Establishment of a Seminary for Social Hygiene.*

4. Nakano reports a case which, clinically, had the weakness, malaise, vomiting and diarrhea characteristic of hemochromatosis. At no time, however, during a long period of observation was sugar found in the urine. At autopsy changes were found in the liver, spleen, and pancreas, which justified the diagnosis of hemochromatosis. The adrenal glands appeared normal.

Cases of hemochromatosis without glycosuria have been described, as well as cases of this disease combined with atrophy of the adrenal glands. Nakano concludes that his case must be considered glycosuria, and with symptoms of severe auto-intoxication due to a functional adrenal insufficiency.

11. In No. 13 of this periodical Scharnke objected to the bath treatment of delirium tremens. Schneider in reply records 31 cases which occurred in the city hospital of Köln during the year 1913. The cases were all of outspoken alcoholic delirium, and were treated in the same fashion. There was not a single death despite such complications as bronchitis, pleuritis, pneumonia, erysipelas and senility.

The method of treatment employed consisted in the use of a continuous warm bath without restraint. As soon as the patients became sleepy, they were placed in bed. Alcohol and hypnotics were never used. When the heart showed danger of collapse it was stimulated with digitalis, camphor or caffein. Such treatment, however, was necessary in only two cases of Schneider's series.

Schneider concludes that this communication offers evidence in support of the hydrotherapy of delirium tremens. [R. F.]

Berliner Klinische Wochenschrift.

No. 12. March 23, 1914.

1. *Wechselmann, W. *Concerning the Salvarsan Treatment of Syphilis.*
2. *Blaschko, A. *Some Fundamental Points in the Treatment of Syphilis.*
3. *Boolander, F. *On the Modern Treatment of Recent Syphilis.*
4. Tobler, L. *On the Breslau Epidemic of Erythema Infectiosum.*
5. *Post, F. *A Contribution to the Treatment of Pernicious Anemia by Splenectomy.*
6. Wollenberg, G. A. *On the Treatment of Paralysis.*
7. Karo, W. *Kidney Diseases and Tuberculosis.*
8. Lilliendahl-Petersen, N. *Methods of Determining Hemoglobin and a Suggestion for Such a One.*
9. Scheibner. *Reports on the Action of "Eisen-Elarson Tablets."*

1. Wechselmann is one of the few men who advise the use of salvarsan alone, that is, without combining it with mercury. He has carried out this treatment exclusively for four years with excellent results, giving in some cases as many as 35 or 40 doses in a single case, and recently having used neosalvarsan. He has given 45,000 injections without a death, and claims first that the fatal results are usually due to lack of appreciation of contraindications, and second that untoward effects are much more liable to occur when mercury is being used at the same time. Of interest in regard to deaths are the statistics of Leredde, quoted by the author, to wit:

Year	Deaths	Salvarsan Injections
1910	16	50,000
1911	92	800,000
1912	66	1,200,000
1913	37	2,000,000

These demonstrate clearly lessened fatalities as clinicians become more familiar with the drug.

2 and 3. These two authors sum up various points of interest in regard to modern treatment, disagreeing with Wechselmann in his conclusions as stated above, that salvarsan alone is the best treatment. Blaschko (2) especially states that Wechselmann lost sight of numerous cases which were really not cured, but turned up at other hospitals and were given combined treatment.

5. Post presents a case of pernicious anemia operated on (splenectomy) in December, 1913, and already showing marked improvement. Before opera-

tion the highest red count was 1,600,000, and on March 11, 1914, it had risen to 3,556,000, and the hemoglobin had gone from 50, its highest point before operation, to 77. The case to date had been observed only three months after operation, but the beneficial results seemed striking. [R. H. M.]

No. 13. MARCH 30, 1914.

1. *CITRON, J. *Recent Progress in the Treatment of Syphilis.*
2. CEDERBERG, A. *The Pathogenesis of Certain Anemias, with Especial Reference to Pernicious Anemia.*
3. AUMANN. *The Measures Used in Fighting Cholera in Servia in* 1913.
4. HEILE, B. *Operations to Relieve Pressure in Cases of Sciatica.*
5. FEDERN, S. *Blood-pressure and a New Method of Measuring It.*
6. UNNA, P. G. *The Chemistry of the Cell.*
7. THEILHABER, A. *On the Etiology of Cancer.*
8. WENTZEL, K. *Experiences with Paracodin.*
9. OPPENHEIM, H. *The Treatment of Leucorrhea with Powders.*
10. WEIGERT. *The Question of Professional Secrecy on the Part of Physicians, in Giving Legal Testimony.*

1. Citron emphasizes the importance of beginning anti-syphilitic treatment as soon as possible, and following it up energetically as long as any traces of the disease persist. He thinks that many late syphilitic lesions are due to improper treatment of the earlier stages by dermatologists, and is especially anxious that it should no longer be considered a skin disease. He favors combined treatment, and does not put much trust in Wechselmann's method of using salvarsan without mercury.

[R. H. M.]

Miscellany.

A PRACTICAL METHOD OF DRYING CULTURES OF BACTERIA.

ALL the better class of creameries use for ripening cream pure cultures of bacteria which are obtained at regular intervals from commercial laboratories. These are carried in the creameries by transferring milk cultures from day to day, the culture being renewed occasionally to insure its purity. The small milk culture, known as a "mother starter," is usually carried in bottles or small jars, from which it is transferred to a large can or vat of milk to make the starter used to ripen the cream.

The ideal culture for distribution is in a dry form, sufficiently active to produce rapid growth when it is added to milk and yet so dormant that it can be held a long time without losing its activity. But the difficulties of producing a culture in this condition are so great that the most successful of the commercial cultures are distributed in a liquid medium and must be used within a comparatively short time. A few cultures, however, have been sold continuously in a powder or tablet form; in other cases the liquid culture has been found to be more satisfactory and the dry culture has been abandoned.

Recently the general interest in fermented milks, especially those of the Yoghourt type, has stimulated the production of various kinds of tablets and capsules which ostensibly contain the organism in such quantities that the culture can be used to start a fermentation in milk or to inoculate the digestive tract by direct consumption. These cultures, as well as those sold for butter-making and cheese-making, are of real value only when they contain a suitable organism free from contamination and are sufficiently active to start the acid fermentation before accidental contamination can develop to an appreciable extent.

As a result of recent experiments the Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture, has devised a method of drying cultures by which the loss in bacterial content is greatly reduced. Experiments in removing the water by a spray carried up by a current of warm dry air were found to produce satisfactory dry cultures, but rapid drying by this process requires the use of complicated and expensive machinery not within the reach of the ordinary laboratory.

Cultures were then successfully evaporated by freezing and lowering the atmospheric pressure. Phosphorus pentoxid and lime were used to absorb the moisture, but sulphuric acid proved to be the best agent for this purpose.

These experiments show conclusively that water may be removed from cultures of bacteria used in the manufacture of dairy products by exposing them in a frozen condition over sulphuric acid in a vacuum approximating 0.01 mm.

Fresh lactic cultures dried by this method are sufficiently active to curdle milk in 17 hours at 30° C. when added in the ratio of 1 part of powder to 1,000,000 parts of milk.

The total number of bacteria in a milk culture may be increased by adding dibasic potassium phosphate, but the powder made from the culture is less active than that made from unneutralized milk. The activity of the powder is not increased by neutralizing the culture with calcium carbonate before drying.

More powder may be produced at each operation of the drier by using a culture grown in milk concentrated to one-half its original volume, and this powder is as active as that made from normal milk.

The activity of a dried culture diminishes more or less rapidly, depending on the conditions under which it is held. The loss of activity in powders is much more rapid when the moisture content is comparatively high. The loss in activity is very slow at 0° C. or lower, and becomes more rapid as the temperature is increased. Dried cultures of the lactic acid bacteria held at 30° or 37° C. become inactive in a short time. Cultures held in a vacuum retain their activity much better than cultures in an atmosphere of

nitrogen or hydrogen; the most rapid loss of activity takes place either in air or in an atmosphere of oxygen.

Very active dried cultures of *bacillus bulgaricus* may be made by the freezing-vacuum method; they curdle milk in 20 hours at 37° C. when added to milk in the ratio of 1 to 100,000.

UNITED STATES MORTALITY STATISTICS.

FROM a statement recently published at Washington by the census bureau, it appears that the death-rate in the registration area of the United States in 1913 was 14.1 per 1000.

"This figure of 14.1 as the death-rate for 1913 was based on 890,823 deaths returned from 24 registration states, the District of Columbia and 41 cities in non-registration states. The total population included in the registration areas reporting is 63,299,164, or 65.1 per cent. of the estimated population of the United States. While the figures are not complete for the entire country, they serve as an index to the general sanitary condition of the United States. Virginia is included for the first time in the national vital statistics, as the result of the passage of a registration law in that state in 1912, and the Bureau of the Census is actively cooperating with officials in other states so that the entire country may be included in the area having effective registration at the earliest possible date.

"The death-rate for 1913 (14.1 per 1000) slightly exceeded that for 1912, which was 13.9, but was less than that for 1911, which was 14.2. It also is markedly lower than the average rate for the five-year period 1901-1905, which was 16.2. The decrease in the death-rate amounts to 13%, or to a reduction of about 1 death in every 8, during the interval of ten years. Allowing for changes made in the registration area during this time (much new territory has been added), when comparison is made of the rate shown for 1913 and for 1901 to 1905, with the same group of registration states, there is still a considerable decrease shown (7.5%). If the same death-rate had prevailed in the registration area in 1913 as prevailed in the annual average for the years 1901-1905 there would have been 1,025,446 deaths recorded instead of 890,823, an excess of 134,623 over the number recorded in 1913. In the original group of registration states as constituted in 1901-1905, the population of which is about one-fourth of the total population of the United States, the reduction in mortality would have been equivalent to a saving of 30,546 lives in 1913 that would have been lost if the former rate of mortality had continued.

"Among the states for which the death-rates for 1901 to 1905 are given, the largest percentage of decrease was shown for Rhode Island (15.7), followed by New York (12.3), New Jersey (11.2), and Massachusetts (9.6). Slightly increased death-rates for 1913 are shown for Michigan (4.5), New Hampshire (3) and Indiana (0.8). These increases may be due in some cases to increased accuracy of registration of deaths during 1913 as compared with the earlier period.

"Among the cities of 100,000 population and over the variation shown in the death-rates covers a wide range. In general, the tendency seems to be to a lower mortality. The following cities show a reduction of 20% or more from 1901-1905 to 1913, or an average of 2% or more for each year of the past decade: New York, 24.7; Jersey City, 24.4; Newark, N. J., 23; San Francisco, 21.7; Lowell, Mass., 21.3; Spokane, Wash., 21.2; Denver, Col., 20.3, and Paterson, N. J., 20.1."

Correspondence.

REORGANIZATION OF THE STATE BOARD OF HEALTH.

BOSTON, May 28, 1914.

Mr. Editor: With the retirement of Dr. Henry P. Walcott from the State Board of Health the health matters of Massachusetts may be said to have come to the "end of an era." It has been his forethought and wisdom that has brought Massachusetts well to the forefront of the states in health matters. Of those who have worked with him in the past only Mr. Mills remains. All of the other members of the Board are serving their first term so that it will be seen clearly that the retirement of Dr. Walcott puts the state health department in new hands.

To those who have realized what was to happen it has long been evident that there was no Elisha on whom could fall the mantle of the leader. This was fully realized by Governor Walsh on taking office and by Dr. E. H. Bigelow, the House Chairman of the Public Health Committee, and they immediately after election took council together as to how they should meet the emergency. Crude bills for the reorganization of the State Board of Health appeared in the legislature, which the Legislative Committee of The Massachusetts Medical Society opposed. In order to try and help matters along they suggested to the Public Health Committee that any reorganization that might be made, should be with a Commissioner of Public Health to be in charge of the executive work of the department, to control and direct its machinery with departments more distinct and better defined than at present and further an advisory council to protect the public from autocratic action on the part of the commissioner, and to give him advice in the formulation of rules under which he shall work, thus preserving, as far as possible, the Massachusetts idea of an unpaid board. This JOURNAL early in the year advocated this general line of action.

The present bill (House No. 2598) which was printed in full last week together with the Governor's message is along these lines. It was arrived at after many hours of consultation between the Governor, Dr. J. W. Kerr, Asst. Surgeon-General of the United States, The Public Health Committee, Dr. M. J. Rosenau and others. The drafting was finally left to Dr. Rosenau after the general features were decided upon. It was then carefully studied by the Governor and various physicians who were invited to meet and confer with him.

The bill carries out the general scheme for a Commissioner devoting his whole time to the health matters of Massachusetts who shall be at the State House and meet the people and also go out to study the problems as they present themselves in our densely populated state. The Health Council is to carry on the judicial work of the present board and to draw health rules for the state, under the laws, which shall apply throughout the Commonwealth. The district health officers who on part time have developed into a strong and important body of men, helpful throughout their district, have been strengthened by putting them on whole time although reducing their number.

When one looks at the past events one has to realize that although the present State Board has been an unpaid board, nevertheless the chairman has had a salary from the state, although in another capacity. Though it has been a painfully inadequate salary for all the services rendered to the state it has nevertheless been a salary and any competent new man coming to the service of the state, whether from the ranks of the state medical profession or called from abroad, would have to be provided with a living. Hence the necessity of providing the man on whom are to devolve the responsibilities of the present chairman and the difficulties of taking up a new work with a salary. Seventy-five hundred dollars may not seem a sufficient recompense but no state excepting Pennsylvania at present pays a ten-thousand dollar salary for its chief health officer. State and university work are notoriously underpaid.

There are two methods of drawing a bill, one which takes every possible detail into consideration and tries to incorporate it into law, the other which tries to establish the broad general principles which it is desired to elaborate, leaving the detail to the executive to work out. Of the former the health law of New York with its 22 pages is an example. There is a mass of health legislation in Massachusetts, which must be lived up to. What suggestions the present State Board of Health may have had regarding it are not known, for the codification of the health laws and the board's suggestions for new legislation, not having been presented to the legislature until late in March, had never emerged from the printers and consequently have not been generally available. The present bill is along general lines permitting the formation of the new State Department of Health on a broad foundation.

The question has been asked, why was not the vital statistics department put where it belongs, under the health department? The only answer is that the legislature in its wisdom voted earlier in the year not to do this very thing. And the answer to the question of why was not the milk inspection provided for? is that the majority of the legislators do not appear to wish what seems to us as desirable milk legislation and that so far, the farmers of the state are not able to see that it is for their interest to have the State Board of Health look after the milk production.

The bill is on the lines that the JOURNAL has consistently advocated and when a clause is added arranging for the protection of the present employers and the change of administration from the old form to the new on the appointment of a commissioner, it is hoped that the bill, as drafted, will pass practically without amendment.

Truly yours,

A. K. STONE, M.D.

THE ANTI-VACCINATION BILL. A CORRECTION.

FITCHBURG, JUNE 1, 1914.

Mr. Editor: In your editorial on the "Defeat of the Anti-Vaccination Bill" in your issue of May 28th, ult., you say, "Mr. Moore of Leominster and many other public spirited members of the House deserve the gratitude, etc." There is no Mr. Moore of Leominster in the House. The medical profession and all friends of good government in the 11th and 12th Districts will, I am sure, thank you if you will note the error and say it should read, "Mr. George F. Morse, Jr., Lancaster, Representative of the 11th District."

Mr. Morse was active in working to defeat this bill, and also on the floor of the House made a strong protest against its passage. Mr. Morse is a worthy son of the late Dr. George F. Morse of Clinton, a medical examiner and member of The Massachusetts Medical Society, a wise counsellor and cherished friend of mine while I was a resident of Lancaster, from 1870 to 1874.

Thanking you in advance for correcting this unintentional error, I am,

Very respectfully yours,

FREDERICK H. THOMPSON, M.D.

SOCIETY NOTICE.

AMERICAN CLIMATOLOGICAL ASSOCIATION. — The thirty-first annual meeting will be held at Atlantic City, N. J., June 19 and 20, 1914. President, James M. Anders, M.D., Philadelphia; secretary and treasurer, Guy Hinsdale, M.D., Hot Springs, Va. Members of the profession are cordially invited to attend the meetings of the Association.

RESIGNATIONS AND APPOINTMENTS.

TUFTS COLLEGE.—*Dr. Frederic M. Briggs* has resigned as secretary of the medical and dental faculties, and has been appointed professor of surgery and secretary emeritus. *Dr. Frank E. Haskins* has been appointed secretary to succeed Dr. Briggs on Sept. 1.

RHODE ISLAND BOARD OF HEALTH.—*Dr. Henry S. Bernstein*, director of the Bender Hygienic Laboratory at Albany, N. Y., has been appointed state pathologist and bacteriologist of Rhode Island.

RECENT DEATHS.

SIR FRANCIS HENRY LAKING, M.D., who died in London on May 21, was born in 1847. He studied at St. George's Hospital Medical School and the University of Heidelberg. He was consulting physician to the Victoria Hospital for Children and physician-in-ordinary and surgeon-apothecary to King George and the Prince of Wales. He was a member of the Royal Institute of Great Britain and Knight Commander of the Royal Victorian Order.

MR. STEPHEN TOWNSEND, who died on May 20 in London, was educated as a surgeon, and became a Fellow of the Royal College of Surgeons of England. He soon gave up the active practise of surgery, however, and became best known as a lecturer, actor, and author. His most familiar work is "A Leaf from a Hospital Day-book."

BOOKS AND PAMPHLETS RECEIVED.

Operative Surgery for Students and Practitioners. By John J. McGrath, M.D. F. A. Davis Company, 1913.

The Psycho-analytic Review. Published by the Journal of Nervous and Mental Disease Publishing Company. Vol. 1, No. 1, November, 1913.

The Uterine Myoma and Malignancy. By W. P. Manton, M.D. Reprint.

The Door is Open. By W. P. Manton, M.D. Reprint.

Bulletin of the Massachusetts Institute of Technology. Catalogue, December, 1913.

Report of the Surgeon-General, U. S. Army. 1913.

Transactions of the American Otological Society, Forty-sixth Annual Meeting. Vol. XIII, Part 1.

Medical and Sanitary Inspection of Schools. By S. W. Newmayer, A.B., M.D. Lea and Febiger. 1913.

Original Articles.

THE PRESENT STATUS OF PSYCHOANALYSIS.*

BY JAMES J. PUTNAM, M.D., BOSTON,

Professor of Diseases of the Nervous System, Emeritus, Harvard Medical School.

THERE are two main reasons why I am glad of the chance to speak tonight on the subject of the psychoanalytic movement, in which for the past four years I have had a share that, small though it has been, has meant more intense and more engrossing labor than I have ever spent on any previous task—a labor often involving much readjustment, sometimes far from pleasant but very satisfactory in most of its results.

In the first place, this movement represents a great boon to many sufferers from a series of extremely distressing and disabling maladies,—more distressing than any one is aware who has not watched the disastrous evidences of them, day by day and from close at hand.

To illustrate this point from my own relatively small experience, I will cite the following case-outlines, which indicate (so far as mere samples can do this), first, that mental disorders ordinarily classified as very serious can often be relieved in this way; next, that neither a bad family history nor long continuance of the symptoms are a necessary bar to improvement or substantial recovery. It goes without saying that this treatment, like all others, has its well-marked limitations, which it neither can nor should be expected to overpass. The persons to whom it appeals, whether as patients or physicians, will be mainly limited to those who are inclined and able to see that a large share of the troubles of this world have as their basis the doubleness of the mental life and the consequent misconceptions of individuals with regard to the influences by which they are being moved. A portion of these misconceptions is due to the fact that men fail to see, perhaps have never been trained to see, that we stand, not as separate individuals, with duties that end in the promotion of our own superficial interests, but as members of smaller and larger communities and groups, and eventually of ideal communities. The sense of isolation, doubt and terror, of jealousy, even of depression and despair, which are so prominent as causes of human misery, and especially of the misery of neurotic patients, would undoubtedly be far less if men were carried along by a sense of devotion to some great cause, some great religious sentiment, in which their longing for more exclusive, personal successes should be merged.

If this were the whole story, then the direction in which the remedy was to be sought would be clearly indicated, in theory at least. But, in fact, this is not the whole story, and the problems at stake cannot be wholly met by a completer recognition of social, or even religious obligations.

There is certainly another great element of difficulty at stake, which consists in the existence of schisms of the personality and self-misunderstandings, that have their root in subtle disorders of development which begin in infancy. These disorders are of such a sort that they cannot be classified as wholly due to an imperfect recognition of the unseen forces which we describe in terms of moral and social obligation. The persons whose development has been disturbed in this way to any considerable extent, are apt to find, at the time when they come up against the necessity of making moral choices, that their ability to do justice to their best qualities has been undermined by tendencies which have not until then been made obvious by definite results, and of which the nature and mode of origin are entirely hidden from the view.

Such persons find themselves saddled with desires, cravings, or habits which they seem under compulsion to obey, or from which they can escape only by the discovery of some subtle compromise which makes the apparent escape a delusive unreality. Of what benefit is it, for example, to escape from a self-indulgence of some infantile type, only to be left a person of overwhelming prejudice or narrow vision, or of blind and hostile pride?

Fortunately, even these compromises are often attended by a sense of distress which may lead the individual to attempt, with expert aid, to discover the true source and nature of his difficulty. It is in meeting this need that psychoanalysis plays an effective part.

A recent personal letter from Professor Freud, dealing with the theory of the treatment, concludes with this sentence: "The great ethical element in psychoanalytic work is truth, and again truth; and this should suffice for most people. Courage and truth are in what they are mostly deficient."

This proposition might well be taken as the motto of the psychoanalytic movement, for it is truth at which it aims. And the recognition of this principle should serve also as an answer to those who might be willing to see something of value in Freud's demonstration that it is possible, by means of his association method, to enable patients to see more deeply into their own histories and yet are unwilling to accept the results which psychoanalysis has thus far brought to light and have no patience with the details which are brought out.

Without these details, however, the principle would be of little worth, and the acceptance of the principle is often only a cover for an inner rejection of every attempt to apply this principle for the benefit of an individual patient.

* Read at a meeting of the Medical Section, Boston Medical Library, in conjunction with the Suffolk District Medical Society, April 1, 1914.

Finally, the fact cannot be too strongly emphasized that there is no necessary hostility between this mode of treatment and any genuine agency for good that social life or the ingenuity of any physician has to offer. On the contrary, in so far as it sets the patient free from the tyranny of his less good impulses, psychoanalysis should make him more susceptible to influences corresponding to the better elements of his nature.

CASE 1 is that of a gentleman of middle age, who had been suffering for about fifteen months from serious paranoid symptoms, accompanied with intense depression and a strongly marked suicidal tendency, on account of which it had been necessary to confine him, against his will, in a sanatorium, where he remained about a year. He had improved somewhat when I saw him, and it is not impossible that he would have recovered after a time without psychoanalytic aid. Nevertheless, considering that he was still deeply despondent and suicidal, so that the services of two male nurses were thought necessary, that under this treatment he improved steadily and fairly rapidly, and that he has had no recurrence in the three years that have elapsed since his recovery, the case seems worth recording, even at greater length than is here possible.

This patient had always been of a gentle disposition, highly refined, sensitive and self-depreciative, and had suffered from environmental conditions which received their tone from the temperament of the mother and grandmother, who, though high-minded, cultivated and refined, like himself, were out of touch with many of the more aggressive and practical interests of a boy's life.

It may be accepted as eminently probable that the qualities thus far mentioned first became developed as a result of reaction to positive emotional desires; but whether this is so or not, it is certain that these desires existed and acted as one of the strong influences of his whole life. He was unquestionably a person who suffered from the need of an outlet for feelings which he strove, without success, to sublimate, but in reality repressed. Any fancied sin against sexual purity (as a single, almost accidental, seminal emission at the age of about fourteen), or against the traditions by which he was surrounded, often gave rise to an agony of remorse. Yet his sexual excitability and his curiosity about sex topics were quite strong, and he was thus drawn continually in opposite directions, and became thereby irresolute and inclined to suspiciousness and depression.

This tendency to feel himself drawn in opposite directions was illustrated also very clearly in his relations to his mother. He was devotedly attached to her, but being fond of society in a wider sense he failed to find in her a complete outlet for his emotional life, and thus came to have a morbid sense that he was neglecting her for others, a double feeling that had a deep subconscious root. So matters went on until his mother's death. Some time previous to this he had been occupied in teaching in a boys' school, and had also been through several rather intense attachments which, however, had resulted in nothing except a series of friendships tinged with an unsatisfied desire for something more. The death of his mother seemed to let loose a number of conflicting tendencies, and led gradually to an emotional crisis which reached its culminating point about two months later. He then had a severe "Angst"[1] attack, after which a tendency to suspiciousness, which formed a part of his self-depreciatory habit of mind, became more and more intensified, and associated itself with gloomy forebodings. A specialist was called in, whose attitude and treatment only added fuel to these flames. The patient felt himself humiliated and crowded down, and took easily to the idea of a hostile conspiracy, as a species of relief. Removal to a sanatorium only made bad matters worse. The attendants treated him, as he believed and still believes, with considerable harshness and neglect, and very soon he found himself living in the midst of a fantasy world in which he played the victim's part with every one for his enemy. If a book was sent to him by a friend, he saw in it, both in general and in detail, only studied attempts to mock at his condition. To this end the writers had devoted their main efforts. Certain colors, and various other signs, seemed to him to be displayed to irritate and distress him, and false interpretations were placed by him on every act. Not only real persons, but the powers of the nether world were discovered to be in league against him. The devil's mark was traced on the avenue of the sanatorium, as a sort of bar beyond which he could not safely pass; and this element of his delusional state became so strong that even when fairly well on toward recovery he would exhibit, at least verbally, a degree of belief in this evil deity which seemed strangely at variance with his intelligence and cultivation.

At the time at which the treatment was begun, his physical health, which had previously been reduced, had become somewhat improved, but his delusions (only a small part of which I have here outlined) were still present in full force. The beneficial effect of the treatment soon became apparent. It was an immense relief to him to trace out, through the study of reminiscences and dreams, the mental influences which had brought him where he was, and to discover that it was possible to neutralize their effects.

It gradually became possible for him to utilize again his fine intellectual and temperamental traits in the interests of a wide life of friendship and social usefulness, and it is my belief that, understanding the situation as he now does, it would be almost impossible for him to suffer a serious relapse.

[1] The German word "Angst," as technically understood, covers a good deal more than can be indicated by any corresponding word in English. Its symptomatology is made up of both mental and physical elements of emotional excitement and distress which often reach a high point of severity.

CASE 2 is that of a lady who had been treated by me without success before my interest in this movement began, and later successfully by this method. Her symptoms, which were of several years' duration, consisted of compulsive and torturing doubts, the extension of which was without limit. It seemed to her impossible to disprove the possibility, dreadful to contemplate, that plants and trees were capable of suffering like men, and this was but a sample of a distrust on her part of the power to form judgments of any sort or even to feel that she had the right to be sure of her own identity and name. This doubting habit had not prevented her from working, it is true, but it had made her exceedingly unhappy, and had given her a sense of isolation at contrast with her naturally sociable and friendly tendencies.

The analysis gradually made it clear to her that her present paradoxical doubts were only covers for a series of uncertainties about old problems of personal conduct, and moral responsibility for definite acts and tendencies of childhood and adolescence of which she was ashamed. It was in the conflicts centering on these early tendencies—that had originated in a craving for personal self-indulgences and personal affection, at variance, as she thought, with a set of ethical standard which she longed to consider genuine—that the habit of doubt became established. For, blame and criticize herself as she might she could not shake off the fact that she had strongly emotional traits, and, until she became able to secure a rational comprehension of her own nature and her ethical obligations, she had no recourse but to make her doubts themselves, and her false reasoning about them, the servants of the emotional longings. She had become accustomed, and with reason, to regard herself as immature, but could not make head against this immaturity until she came to see in just what respect the estimate was a just one.

In cases of this sort an element of peculiar difficulty for the treatment is often furnished by the fact that the reasoning power itself becomes sophisticated, and is prostituted, as it were, to the keeping alive of the tormenting but fascinating doubts.

This was so in her case. Gradually, however, improvement set in, and for a long time the patient has been so well that except for short periods, during times of especial stress, she has been mistress of her thoughts.

CASE 3 is that of a lady still under my care, whose history may be condensed as follows:

Up to the age of about twenty she was ordinarily well balanced, a fine scholar at school and college, finding perhaps too strong an attraction in her literary work with its appeal to her esthetic sense. She was intensely, perhaps too intensely, devoted to her mother, who was for a number of years an invalid. Yet she insists that this relationship was in no way narrowing or unwholesome, but rather of a broadening tendency.

Later analysis brought out several facts about this early period, which, trifling as they had appeared, have become of material significance in indicating the existence of conflicting trends in her temperament. Had her mother lived, or had she been able to work out a life on lines other than those that she was forced to follow, all might have gone well. But while she was in college her mother died, and she was then called upon to face situations which were not in harmony with instinctive desires that had become stronger, subconsciously, than she knew, to the exclusion of traits of which she stood in need and could not spare. Then inner conflicts began to show themselves, which became especially intensified after her marriage (in itself a very happy one), and forced upon her a series of obligations which she felt herself unfitted to assume, and under conditions peculiarly hard and uncongenial.

Sick, thwarted, and disappointed, she began to react against herself and her environment with an intensity difficult to express adequately. Persons whom she had every cause to love became objects of horror and detestation, and these feelings were poured copiously upon herself as well. Home-making became an impossibility, her despondency bitter and severe, and the desire to end her miseries by her own act a longing scarcely to be resisted.

In spite of the call of obvious duties such as she had never previously disregarded, and in the face of an obviously rational outcome apparently within easy grasp, the inner obstacles in the way of a successful attainment of her best wishes seemed almost insurmountable. Moods of violence lay always close beneath the surface; and though better moods were also near at hand, yet the better moments were fleeting, and for the most part she kept being overwhelmed as if by waves of destructiveness, or drawn out beyond her depths by a strong undertow of despair. It was only after many months of almost daily treatments that anything like stability seemed to come within her reach. But at present a better outcome seems to be in sight, and the main trend is gradually toward a better state. And the result has been due to the equally gradual defining of the removable portions of the difficulty in terms of the undesirable trends of character and temperament which the patient is learning to discard in the interests of a better sort of progress.

CASE 4 is that of a lady, an artist by profession, and of highly neurotic stock, who for some ten years had been tormented by morbid fears which made it painful, if not impossible, for her to go down town, or to places of entertainment. This sense of fear, which was indescribable but prostrating, and for which no obvious cause could be assigned, was gradually traced to longings and cravings which had their origin deeply in her temperament, and which she had been unable to face out, because never fully aware of their meaning or existence. She had had treatment from excellent physicians, but without avail. In the course of a few months, however, she became substantially relieved, so that she could go everywhere with but slight traces of discomfort, and could finally take a foreign trip. I have heard from her at intervals, and in very gratifying terms.

CASE 5. Another case which has interested me greatly is that of a young man, gentle in demeanor, rather small in stature, a chronic masturbator, suffering from timidity and morbid consciousness of himself, who since earliest childhood, as if either

seeking a compensation from these tendencies to a sense of insufficiency, or with the primary love of self-assertion which every infant feels,[1] has indulged in grotesque day-dreams of heroism and domination. In these day-dreams, which came to his memory gradually, during a moderately long treatment, he felt himself a king, or even tyrant, able, like Nero, to gratify fanciful ideas of cruelty. His dreams, like his experiences, have illustrated the concealed motives of his life,—to override others and to seek protection for himself. In a recent dream, of obvious tendency, he found himself at first indentified with the pilot of a newly-built steamship of high power, which he called "Novelty," and in which he was ploughing his way rapidly and successfully through a winding channel into an open sea. Then the scene changed, and he was (like Phaeton aspiring to drive the wagon of the Sun) the easy master of a four-hourse sleigh, in which again he was making his way at full speed toward an open and unknown but unfeared land that lay before him.

In thinking of this case and others of like sort, the image has come frequently to my mind of a pair of Siamese twins, each invisible to the other and endowed with opposite characteristics. How could this patient expect to make his better ideas of progress and usefulness avail, so long as they were harnessed to this unrecognized desire for power and domination? The difficulty became even more apparent when, after recognizing the significance of the situation, he admitted that this half hidden love for power, although alien to his more conscious personality, was something from which he could hardly bear the thought of parting. Fortunately he has learned to see, not only in his day-dreams, but also in his depressions, his numerous fears, his doubts, and even in his trains of over-ingenious reasoning through which he seeks to justify his false positions, the evidences of personal self-indulgence, the mental equivalents of his masturbation.

In all these respects he is making excellent progress toward character development, and thus recovery.

I have made no attempt to show in detail the mode in which, in these cases, the basis of the later symptoms was laid down in infancy and childhood. It would be impossible to do this satisfactorily without entering at length into the personal histories of each patient, as well as into the discussion of Freud's whole doctrine of infantile and childhood psychology, and his theory of the part played by the accentuation, through arrest, of one or another specific phase of infantile development.

It is enough, for present purposes, to point out that such patients fail to live happily and to work out their best birthrights, by no means always because life offers them so little in the way of health, opportunity, inheritance, or fine traditions, but also because of influences of more or less accidental and theoretically avoidable sort, emphasized in infancy and because of early longings and cravings, which perhaps social traditions, perhaps conscience, could not justify.

In Case 5 the egocentric tendencies of the patient were fostered through the injudicious influence of a nurse who for a long time played toward him the mother's part, though by no means in the best sense. Unfortunately, the sense of supremacy thus early emphasized did not stimulate him to take a really leading part in practical life, even in childhood, so that it was only through idle day-dreams and postponement of daily tasks that his theory of leadership could be kept alive. All the greater was the sense of downfall when actual trials proved this theory to be untenable.

As regards the value of the method used in treatment, I desire to emphasize the point that there is no necessary hostility whatever between this means of securing benefit and those employed by men who prefer to stimulate their patients to march forward, through work, loyalty, and wholesome living. It is, indeed, difficult for me to conceive why any one should consider the interests of medical progress served by the suggestion that this hostility does exist, while it implies on the other hand a most unfortunate narrowness of view with regard to the varying needs of psychoneurotic patients. Every one whose experience is at all large has seen an abundance of cases where influences which ought to have turned out favorably, if neurological treatment of the old style was practically or theoretically sufficient, have turned out, in fact, anything but successful, because no one had sufficiently recognized the terrible handicap which internal conflicts may create. Of what use to urge such sufferers to toil, pale and panting, toward the summit of their Mount of Difficulty, when they must drag along an unseen ball and chain which deeper insight might remove, leaving them able not alone to help themselves but to show a wider sympathy for their neighbors? The case which comes frequently to my mind in illustration of this sentiment is that of a clergyman, a man of the finest character and highest principles, who was obliged to live as a voluntary exile in a hospital for the insane because he was carried away by the obsession that he would kill some member of his family, to which he was, in fact, devotedly attached. The case was of a sort which is now known to be almost invariably modifiable under favorable conditions, and usually curable under the best conditions, through the psychoanalytic method; and although in this case the best was doubtless done that could be done, yet the time will come when it will be considered a disgrace that such a patient should remain, year after year, with the proper remedy for his malady unsought. The fear of killing, in such cases, represents the persistence of a fantasy of childhood, clothed with emotions which are usually referable to

[1] Ferenczi has pointed out that the infant, by virtue of the fact that he is the centre of attention, and, through a series of specific signals, can secure the accomplishment of his will, is liable to acquire a sense of all-powerfulness which may easily become intensified and persistent. Internationaler Zeitschrift für Aertzliche Psychoanalyse, Jahrg. ii, Heft 2.

conditions prevailing at that period of the patient's life and removable later through discovery of their origin.

In the next place, even the very principles underlying this movement have been dreadfully misunderstood, and in order that they may be correctly understood they should be studied carefully and repeatedly.

I shall use the remainder of my time in discussing certain of these points about which misunderstanding chiefly reigns yet should not reign, and will lead off with a few remarks about the central figure of the movement, Professor Sigmund Freud, whom—let me say—I regard as a personal friend, and have learned to respect as a man of superior cultivation and even genius.

I have learned to see in the modes of investigation adopted by this remarkable man, and by those who have followed in his path, the signs of intellectual honesty of a high order. There is room, no doubt, for considerable difference of opinion with regard to the interpretation of the symbolisms met with in dreams, around which controversy has so fiercely raged. But it should be borne in mind that these interpretations of a given symbol, as offered by any given psychoanalyst, are usually based on large numbers of observations by himself or others, through which the meaning suggested has seemed justified. Interpretations so based acquire the value of tentative, partial definitions, offered, of course, for the acceptance or rejection of those who are willing to take into account the conditions which led to the framing of them.

It should be remembered that Freud was, to all intents and purposes, a pioneer explorer in a new territory, and that he felt himself under obligation to report everything which he found there, at the risk of the loss of his own self-respect if he should fail, through carelessness or timidity, to do so. I say "new territory," for although perhaps none of the principles which Freud announced (such as the principle of repression or that of forgetfulness as an evidence of repression, or of the significance of the several stages of the infantile life for the characteristics of the adult, or of the importance of the sexual emotions) were wholly new, yet it was he who first gave to these principles accurate form and color, organs of locomotion, and an individual virile life; and it was that endowment that caused this great movement to command respect, on the one hand, and to evoke criticism, on the other.

People sometimes speak of Freud as if he had been the first one to speak freely of the sexual life, but in so doing they overlook the extensive publications of such men as Krafft-Ebing, Moll, Havelock Ellis, Janet, and many more, which, important though they are, have mainly slept on the shelves where they were deposited, unknown or shunned save by a few more curious or bolder readers. It was Freud that first breathed vital energy into this neglected topic, and forced its recognition by demonstrating its practical importance. One should not overlook the fact that the somewhat patronizing statements to the effect that Freud and his followers "have gone too far" in this or that direction, or have "misled" many persons to entertain false doctrines, have often been made by men who even now have never trodden the path broken by him through this wilderness, or who might live a thousand years without giving us the splendid gift of Freud's discoveries—a gift which, to be appreciated, should be looked at in terms of its best possibilities, its best animus.

There has been a great deal of misunderstanding also on the subject of Freud's attitude with reference to the significance of the sexual life in the causation of hysteria, and the psychoneuroses of other sorts. It is a great mistake to assume that in their analyses of a patient's case psychoanalysts see before them nothing but this special phantom. In the first place, it is emphasized by every writer that as a partial cause for every psychoneurosis, a predisposition exists, which it is impossible to define in exact terms but about which one can say that it implies an excitability of the emotional life, and hence of this great sex-emotion with the rest and predominantly with relation to the rest. This is a predominance which the sex-emotions may be said to share with the instinct to assert one's existence, in the sense of Schopenhauer's will to live or Nietzsche's will for power. But even these instincts may often be best described in terms of personal relationships, and therefore if one wishes (for reasons of practical classification) in sex terms. Next, it should be recognized that the objective point of every psychoanalysis is the placing at the disposal of the patient's conscious awareness, of everything which his own intuitions feel to be significant. Nothing is to be excluded which he can reveal, whether as regards the history of his environment in childhood and later, or his personal ambitions, or his religious views, or his opinions upon any other subject. More has never been maintained than the fact, testified to, or rather asserted, by the patient's own memory and power of inference, that amongst the turmoil of emotions which form the basis of his hidden complexes, the sex emotions invariably occupy an important place.

With psychoneurotic patients this particular passion comes preëminently into play, for the simple reason that it is not only one of the strongest by which men are moved, but the one most strongly repressed, and that it is thus placed on a vantage ground for special mischief.

For the sake of making clearer Freud's conception of the sexual I give a very free translation of one of the latest of his carefully drawn statements with regard to this point, again begging those who would pursue the inquiry further to read the fifth chapter of Dr. Pfister's[1] book.

[1] Oscar Pfister: Pedagogium, Band I: Die Psychoanalytische Methode.

"It is well known that psychoanalysts have been criticized for extending their conception of what is to be understood by the word sexual, far beyond the usual limits. The fact that they have done this is true; whether it is a matter for criticism is another question.

"The conception of 'sexual' as now defined by psychoanalysts is wider than the popular conception in both directions, and the reasons for this widening are best stated in genetic terms. We include in the sexual life the whole range of emotions which had the primitive stirrings of the sexual function as their main root, even when the emotions which were derived from these primitive stirrings are no longer directed toward what at first seemed to be their goal, or have even become directed toward a new goal which would ordinarily be classified as not sexual at all.

"Reasoning in this way, we prefer to use the word 'psychosexual' rather than 'sexual,' in order to make it clear that we neither overlook nor underrate the mental factor in the sexual life.

"In other words, we now use the word 'sexuality' in a sense equivalent to that of the German word *lieben.*"

In view of this definition and in recognition of what "love" stands for in normal life, can one wonder that the sex-emotions should play the prominent part that is ascribed to them in the causation of the psychoneuroses?

Another very important consideration for fair-minded persons to realize and remember is that when the term "sexual" is used by psychoanalysts with reference to some experience or symbol, it is by no means necessarily meant to imply that the grossest connotation of this word is present in the patient's mind. An important principle here comes into play. One justly classifies a series of phenomena by the most prominent and typical of its members, and if one is on the watch for elements of especial significance, of especial danger, for example, then one classifies with special reference to that point. "De potiori designatio fit," or, in other words, there are occasions on which to lay a hand, no matter if gently, on a man's arm is to commit assault and battery.

Another expression of this principle, and one which appeals strongly to me, would be to say that we can judge best of acts, as well as of men, by looking at their tendency or motive power, or animus; and this is something which is by no means always seen at first glance.

Let us suppose, for example (what must, from the evolutionary standpoint, be the case), that an unbroken line connects the sensuous with the spiritual and in terms of this situation let us consider the meaning of some given act. Let us suppose that one man kills another. If the animus or motive of the first man is in the line of sensuousness, or brutality, we call his act a murder. If it is in the line of the highest interests of the community we call it patriotism.

The question is whether the main trend of such a man's emotion, which in both cases takes in, theoretically, all that the whole line stands for, is more toward the spiritual or more toward the sensuous aspect of his nature.

To a great extent the problem before the nervous invalid is the same with that which every living man is forced to meet:

We come into the world with infinite possibilities ahead of us in the way of moral and intellectual development. Why do most of us fail so signally to realize these possibilities? Surely, in part, because to realize our best possibilities would imply a thorough utilization of powers of disinterestedness and rationality, of which all of us possess, indeed, the germ, but which we can employ only at the cost of setting aside the temptation to follow the broader and easier paths marked out by pleasure, passion, and self-interest.

The path of disinterestedness and reason is one that mankind has learned only comparatively recently, and, so, imperfectly to tread; the broad and easy path has been trodden by countless generations of beings from which we derive our life.

The conflicts here involved are old ones and have been called by many names, as that of the carnal, the natural, and the animal against the spiritual.

Adam and Eve, preferring knowledge, even with the chance of sin, to ignorance and static content, fought through this conflict in the garden, as Hercules trained himself to do, even in his cradle; and it is noteworthy that in both cases the serpent, symbol alike of sense-temptation and wisdom, played a prominent part.

In such exigencies as these, the child, ignorant of his danger, often endeavors to avoid the necessity of taking a definite stand by adopting a self-deceiving device, which is all the more effective because utilized almost wholly without conscious awareness on his part. The child, namely, instinctively learns that he can reject any given form of self-indulgence, so far as its original shape is concerned, and yet preserve its essence by encouraging its attachment to some otherwise indifferent and allowable conscious process. I am now defining a principle of general psychological significance, and not dealing with its application to any particular form of symptoms. But examples can be furnished by every one's experience, and are given on a large scale by the history of ascetism.

To combat this tendency to self-deceit only thorough-going methods will suffice. One has to learn to ticket, as with a red tag, the beginnings of evil. It is of little use to upbraid one's self, for our acknowledgments of fault and frailty are sometimes the very means by which we keep alive the essence of the fault and frailty.

I am free to admit that the psychoanalyst assumes a responsibility when he disturbs any equilibrium at which another fellow-being has

arrived, even such an equilibrium as his nervous symptoms secure to him. But this is true not of the psychoanalyst alone, but of the minister and of the educator, who, like the psychoanalyst, though perhaps in a less trenchant way, are continually endeavoring to bring about a new equilibrium better than the last. I assert only that psychoanalysis has its place and meets certain needs, in these difficult situations, which are not otherwise to be met.

Psychoanalysis helps the patient who has been driven to follow blindly an inferior vision of his destiny in which gratification or some subtle substitute for gratification plays so large a part, to strengthen the slender thread of his rational and spiritual life, and to see that his massive longings and personal affections, that hark back even to infancy, ought to be regarded not solely as something of value in and for themselves, but rather as bridges to something better.

SOME PERSONAL RESULTS IN PSYCHOANALYSIS, AND THE FUTURE OF PSYCHOTHERAPY.*

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ON the invitation of your chairman, I shall undertake to make a few remarks upon the use of psychoanalysis in some of my own cases, and sketch in a manner what I think will be the future of psychotherapy. In a measure I know you will pardon me if I am somewhat personal at the beginning of my short paper.

Soon ofter graduation I began the study of nervous diseases because I was ashamed to admit during my first week in a general hospital training that I did not know peripheral neuritis from locomotor ataxia; the various forms of sclerosis of the cord meant nothing to me. After I had studied the old museum pieces of spinal cord and brain diseases in the incurable wards on Blackwell's Island, I was forcibly impressed with the very hopelessness of curing or bettering such advanced disorders of the nervous system. In an effort to get nearer to the beginnings of nervous disease, and especially brain disorders, I entered the Insane service on Ward's Island. In my mind I carried over to this service the idea that inasmuch as all the spinal cord and brain diseases I had so far seen had a gross pathology, the various insanities probably had their gross or microscopic lesion if one were able to approach these disorders with a sufficiently careful technique. Just at that time the refinements of sectioning and staining brain tissue were on their way, so I served an apprenticeship in this quest in Dr. Prudden's laboratory, working with Dr. Van Gieson. After a short study of the clinical and pathological material of the Asylum, I saw that some mental disorders, such as the arteriosclerotic dementias and general paresis, did have a more or less distinct pathology which was demonstrable to the naked eye or under the microscope, but that there were a host of other insanities with which one could do nothing in making clear their pathology neither could these mental disorders be classified satisfactorily (this was before the days of the Kraepelinian school) in consequence, no definite idea of prognosis was possible, and the result was that the treatment for all these insanities was practically the same. After several years' study of the convulsive disorders at the Craig Colony for Epileptics, and continued study in the clinics abroad, it steadily dawned upon my rather rigid and materialistic mind that out of the sum-total of nervous affections the special physician was called upon to treat, the majority of them were functional and had their origin for the most part in those persons who possessed illy organized physical and mental habits. The greater number of such nervous invalids had a peculiar type of personality which differed a good deal in different persons, but on the whole a certain defect of the same was always to be found and reckoned with in any rational diagnosis and treatment. I then began to realize for the first time that the large group of psychoneurotics and even those presenting milder types of the insanities needed in a great measure to be handled along psychologic lines; I saw I must cease thinking of these diseases in the strict terms of a nerve cell perversion and look more sharply yet simply into just what sort of human beings with which one really had to deal. From paling into a splendid martyrdom of laboratory research for the cause and treatment of these functional disorders, I found I most needed to gain more understanding of the different ways ordinary everyday mortals reacted to the various vicissitudes of life, more especially when they had this neuropathic constitution and personality. Like many another chastened special worker in this field, I saw I had greatest need of pencil, paper, a quiet room, lots of patience and a certain amount of tact, and that in future I could well afford to spend less time in an especially equipped physiologic and psychologic laboratory to find out what really ailed nervous people. The idea, you will percieve, was all very human and an outgrowth of reasserting common sense. Please do not misunderstand; I do not depreciate the employment of all the best means of physical diagnosis and the use of the most advanced drug therapies and physical therapeutics that may be brought forward.

After this somewhat random and personal introduction, I shall undertake to give you some results I have had in the study and treatment of the psychoneuroses as shown in a few selected individual cases. The method or study and

* Read before the Medical Section, Boston Medical Library, in conjunction with the Suffolk District Medical Society, Boston, April 1, 1914.

treatment in all which I shall attempt to give were treated by psychoanalysis, the details of the use of which I trust you are all familiar with from the admirable teachings of Dr. Putnam.

I shall give only the merest outline of the cases, any one of which in detail would outrun the time allotted to this short paper. I take it for granted that your individual experience with the use of various types of physical therapeutics such as baths, massage, work, etc., are sufficiently well known to be devoid of interest at this time.

The first two cases that opened my eyes to the great importance of an intensive analysis of the inner life, were referred to me by two of your Boston physicians.

The first case was that of a young unmarried girl. She had recently graduated from college at 21. She suffered from hysterical convulsions and from other convulsive seizures that were thought to be genuine epilepsy. These disorders had existed for several years and had defied all the usual plans of treatment for either disease. Inasmuch as I could not prove to my own satisfaction that she had ever really had epileptic seizures in which tongue-biting and incontinence of urine occurred, and in the absence of certain physical and mental stigma of epilepsy which one might expect in such cases, I determined to make the one disease of hysteria go as far as it would—a bit of chiding, but wise advice, I learned to accept from my studies with Hughlings Jackson. The girl was an extraordinarily clever girl and practically analyzed her own case for me, at least so far as the conscious field of her life was concerned. Then by a series of intensive studies of her dream life we succeeded in unearthing a love of self-inflicted pain which served as a sexual satisfaction, called masochistic pleasure, and which had been a conscious practice in youthful days, but which had gradually relegated itself entirely to the realm of the unconscious life, and provoked the hysteric attacks, which were really phantom representations of the sexual act. After we had gotten all these facts unearthed and made plain, all the different types of fits ceased. The girl soon took her proper place in the intellectual world and commanded a salary of $3,000 a year, in a position which she resigned last year to work for no salary, plus love, having married a poor but very able physician. I never obtained so much cheap credit for performing a miraculous cure before or since. The clever girl really analyzed herself, and took me along: I followed and saw the wonder of it all. The whole experience was as convincing of the value of psychoanalysis, at least in such cases, as when I saw the diphtheritic membrane peel off a child's throat after the administration of antitoxin.

The second case, which, however, was not a consecutive one in my experience with psychoanalysis, was that of a married woman of 56 living in New York, referred to me by another Boston physician. She had periodic depressions of such an intense character as to be classed as mild attacks of manic-depressive insanity. There were great depression, loss of sleep and appetite, indecision, neurasthenic pains, slow thought, considerations of self-destruction, etc. The attacks had occurred at least twice a year since her marriage at 24. Her continued illness had engrossed the whole family and wrapped them in gloom truly pitiful to contemplate. Thorough analysis disclosed her periodic depression to be really a compulsion neurosis at heart, in which there were certain phobias of death and fear that there was no God and no immortality; all these ideas by dream analysis proved that this woman had a very fixed infantile attachment to the aunt (her mother died soon after her birth) and that the panics, fears and depressions were really substituted mechanisms from an unconscious desire to die and be united with her aunt who had died. It is unnecessary to say that her marriage was a non-sexual one, and efforts to adapt to new relations brought out the symptoms. Even going to the country and coming back to town or making any new adaptations in life always brought on her depressions. After three months' treatment she was so much better that she discontinued treatment of her own initiative. She has never had a depressed day since the analysis. The treatment was finished five years ago. This case is cited for special reasons; two practical points are worthy of note. The analysis was, of course, not as complete as I thought it should be, yet it was evidently thorough enough to bring about a practical cure; the other point is that psychoanalysis was undertaken in a rather "set" woman of 56, an age often thought too advanced for such a plan of treatment. It all goes to prove that one must not follow any hard and fast rules in an age-limit in psychoanalysis nor in stating just how long the analysis must be made. I have had another equally successful case of relatively the same sort in a woman 60 years of age.

I am impressed the more carefully we study the one time periodic neurasthenias and the same type which has later been designated manic-depressive or cyclothymia, that many such cases which on superficial examination seem to belong to the above types really belong to the compulsion neuroses with obsessive ideas. This point is of more than academic interest inasmuch as at the present time no line of therapy has been able to prevent or greatly retard the recurrence of subsequent attacks in such individuals. The case above cited is the more remarkable as more time intervenes. I have others like the one just cited that promise as well in final outcome, but only time will prove this point.

For a number of years I have been interested to see what treatment can be employed for incipient cases of dementia praecox,—whether they can be conserved from going on to the deterioration requiring asylum care. From some half-dozen such cases studied and treated two may be briefly cited.

The first, a young, unmarried man of 29 years of age, who had been twice in sanitaria for nervous disease for periods of several months each. The mental disorder had been in existence six years when I first saw him. He was a typical case of dementia precox with mannerisms, stereotypy and a

delusion that God was killing him by casting his thoughts upon him, etc. A rather complete analysis showed that he had a firm mother attachment. He began masturbation at seven years of age and continued it off and on thereafter. He had a marked musical ability and at fourteen tried to stop masturbating by throwing all his energies into his music, but at this time his mother, who had kept him company in musical education until that age, was obliged to discontinue her practice with him. Immediately the patient recommenced his habit of masturbation. He then joined the church as a defense against this practice. The music and church work combined were effective for a time. He felt best and was free from torture of sexual thoughts when he played music, but some five years ago he played secular music at a church fair held in a church, and since that time until I saw him two years ago he played no more music; again he commenced masturbation, became listless, inattentive, slovenly, and developed his complete series of a precox symptom. Analysis showed that music meant all the sexual satisfaction he had prior to the intensive practice of music. When he played secular music in a church he thought he had committed the sin of polluting his own and in fact all religion, and therefore God had sought to punish him in the manner outlined in his delusion. He was sufficiently accessible to bring many of these ideas into a semblance of rational adjustment. His physical and mental habits were readjusted and his main avenue of strongest contact with the outside world of reality through his music was carefully opened again. He is now doing fair work in a theatre orchestra. He has lost his peculiarity of manner and conduct and to a great extent seems to have been conserved from a useless existence.

If such a man had been taken early after his great conflict under which he broke entirely, it would seem that much more might have been done for him. I believe it is popularly held by many alienists that dementia praecox is an organic insanity, but while that popular belief is being substantiated, why should we not handle many of the accessible cases somewhat upon the lines detailed?

The next case had an even more promising outcome; a young, unmarried girl of 19 who had been adjudged a case of paranoid dementia precox. She had delusions that she was being hypnotized, that her thoughts were being read by many people, and later that God had given her direct power to save the world. The final dream analysis showed that the *hypnosis* was a wish desire of a sexual character for a certain man for whom she had an unrequited love, and that God was the father complex sublimated. Her own father had rather seriously admonished her to go out in the world and earn her own living as all the other members of her family had done. The divine power idea had been a dream at first and she continued it in the waking state as a fixed belief. Her physical and social surroundings at home were very bad; these were all changed, and gradually the analysis opened her outlook to the real life about her. An aunt took her under her protective care and the young girl is now busy and happy as a designer in a millinery establishment and is pursuing some language studies in a neighboring school. She states that the former delusions are like a half-forgotten bad dream.

I think these two cases of dementia praecox go to show that we physicians, during the several months before many of these cases go to asylum commitment have a distinct duty to perform. Inasmuch as the average asylum life of a dementia praecox is about fifteen to seventeen years, ought we not to try to conserve these cases if possible by extra mural treatment?

Furthermore, the more we study cases of craziness, which the benign or recoverable psychoses have been called, the more we will find that the crazy ideas and apparently meaningless jargon of such patients have a real meaning when carefully analyzed, and if we will but take the pains to piece these sayings and acts together the more will we see that they really intimately concern the real difficulties with which our patients have unsuccessfully coped. The mental content I believe in time will be found to give us real clews to many of the conflicts with which our patients unsuccessfully contend.

A number of us are studying the innate nature and mental treatment of the tics. We have already found that such disorders as mental torticollis and the facial tics are really the motor expressions of certain types of mental conflicts which require some physical acts. When such individuals are fully freed of their tic disorder by a detailed analysis, the result is surprisingly good. When we realize how stubborn to treatment *tic convulsif* has proven in the past we should hasten to welcome any rational plan of therapy that promises any measure of permanent success. It is ironically amusing that the facts concerning tics which we are but just now working out in detail Charcot long ago elaborated in general terms. We now see the master's original precept and the detailed facts of today are united in a complete whole. During the past two years I have treated several cases of tics upon the foregoing grounds and the results so far have been excellent.

One of my first cases of tics studied as a psychoneurosis was that of a man 28 years old, unmarried, an expert bookkeeper, who suffered one of the severest grades of left spasmodic torticollis I have ever seen. At first it seemed that he were none other than one of the so-called professional tics. With my consent, the surgeon by whom I was first called in to see the young man, did a full resection of the spinal accessory and the cervical nerves of the left side. This treatment was of no avail. The case was then turned over to me to make the best of a bad job. That which seemed at first like a just punishment to me to further handle the case, turned in the end to be a reward. I employed the reeducative methods, massage, electricity and all the usual correctional nerve remedies. I then undertook a minute inquiry into the exact manner in which the tic developed. The first analysis showed that the patient had worked under great physical and mental stress at cross-ledger accounts; this, in conjunction with a severe psychic shock, seemed

sufficient to cause the tic, but further inquiry was pursued. The next study of the case showed that since school days and earlier he had had a very persistent habit of stroking the left side of his head; this habit was consciously broken off a few weeks before the tic developed. When under great mental stress he felt that he wanted to do this previously automatic act of stroking, but he suppressed the inclination, and while he was finally successful in controlling the movements of the hand, the head wobbled and finally broke away from control in the torticollis, as shown in the disease from which he sought relief. In the next study we determined to unearth the origin of the habit movement. This finally proved to date from a caressing, petting act of the mother in rocking him to sleep in his nursery days. It was further shown in dream analysis and other methods of approach to the infantile life that our ticeur was surcharged with many doubts and fears and states of obsessive thinking since he was a child, and that back of all these compulsive thoughts and desires he had conflicting doubts which resulted in indecision and vascillation. A three months' analysis enabled us to clear the situation. He has no torticollis today and has been well for over a year.

Another case was that of an unmarried woman of 36, with a professional tic torticollis to the right. All the older forms of psychotherapy failed in other competent hands and in my own. Psychoanalysis revealed an incompletely repressed sexual attachment to the father, which broke out in the tic when she undertook onerous and worrying tasks in a business office, the manager of which was the source of an unrequited love on her part. A three months' treatment has reduced the spasm, taken out all the secondary defense acts to control the tic and she is comparatively well, at least as long as the call for new adaptations in her home and her new work is not too severe. I may say that in both the foregoing cases extraordinary changes in character and ability to do better work have incidentally been brought about by the treatment, although psychoanalysis was undertaken primarily for the tic disorder.

The third case I shall mention briefly; it is the most surprising one in its rapid improvement. The young man had the greatest number of different tics and habit movements I have ever seen. In the heydey of the tic disorder last fall when I first saw him, he had 13 different habit movements and tics, which were as follows:—

(1) Biting of finger nails following finger sucking. (2) Grimacing tic, involving the whole face. (3) A genuflexion tic. (4) Sighing tic. (5) Laryngeal, clicking tic. (6) Autoecholalia (repetition of some or all of the words in a declamatory statement) which finally ended in (7) an exclamatory tic, "Huh! huh."; a so-called grunting tic. (8) Tousling the forelock of hair, which ended in (9) the finger tic of tousling imaginary hair. (10) Picking the finger nails, which succeeded the cessation of biting the nails. (11) Picking the face, which resulted in a profuse suppurative acne over the entire face. (12) The ablution tic, wringing the hands and washing the face. (13) Panics and fears that he was to faint, lose his mind, meet with an accident and be killed, or that he was to die.

To make a long case analysis short, they were all resolved back to their genetic origin, and in two months' treatment they all disappeared except the autoecholalia, the sighing tics and the panics. The autoecholalia is a repetition of certain words in sentences which the patient himself has just uttered, and has the following explanation: Inasmuch as the patient has always had doubt and uncertainty of doing and saying the proper thing (obsessive neurosis), he contracted the habit of repeating aloud the essentials of the sentence, the headlines of the idea as it were, and in this manner he relieved and quieted the doubt and feelings of inadequacy. Much the same was shown later in his underscoring and repeating certain phrases and even ideas in his writing. In the process of inhibiting this disagreeable repeating of words, he first stopped repeating whole sentences, then single words, and now the phenomenon amounts to but a beginning of speech, a sort of exclamatory speech, and the former intellectual act has been almost inhibited, but there still remains the semivoluntary muscular larynx and diaphragm contractions. Here we have the complete conversion of a psychic process into a physical act or tic. It has completely lost its former mental meaning. This tic has now practically disappeared. The sighing tic went with the panics. The boy had the panics and fears since he was 11 years of age, or since the father's death. He had such a homosexual father attachment that he attempted to die by holding his breath, going without sleeping or eating, etc., which were all childish attempts at suicide. The fears and panics came on first in the dreams three or four days after the father's death. In such the father came back, and it seemed as though he had never been ill; then he came in dreams as though he were ill but recovering; then he returned, was ill, and died; then he returned, was ill, died, and the patient strove to follow him, with all the feelings of the panics and fears. All the dreams ended in a nightmare, not understood until the full drama of the final act in the dream was brought into the conscious life. Then the father dreams ceased. He then dreamed rarely of the father, but had panics and fears which were in conscious symptoms what the pursuits of the father image in death-dreams were. A free association of death brought out an exact description of his panics and fears. All difficult or new adaptations brought on the panics, such as going away from home, meeting strangers, or going to little social gatherings. The most extraordinary result has been brought about in this case from a three months' analysis—the tics are gone, the panics and fears flowing out of a deeper trend in his life are nearly absent. The young man is at work half the day and attends an occupation school the other half. He is neat, cheerful, orderly and, in the words of his former despairing sister, he is a "reformed and agreeable young man."

I think there can be no doubt that all ticeurs have a constitutional makeup and certain peculiar types of mental conflicts that place them with psychoneuroses of the compulsion type, and such neurotics ought to be treated by psychoanalysis when possible. The first case I mentioned had his disorder five years, the second two years, while the third had most of his tics from earliest childhood and his true obsessive thinking from his eleventh year, which goes to show the length of time the tic has existed has

little to do with the prognosis. The main issue for real successful treatment is a sincere desire on the part of the ticeur to rid himself of the disorder coupled with his willingness to follow the psychoanalyst.

In speaking more directly to the text allotted to me by your chairman,—the future of psychotherapy,—I am aware that I am stepping from the firm ground of proven facts to that of prophecy, the unsubstantial footing of which you shall be the judge. In the beginning I shall say that I consider there is but one real thorough-going plan of psychotherapy, and that is psychoanalysis. All the other schemes of hypnosis, suggestion, persuasion, re-education, etc., are but incomplete half-way stations in the handling of the psychoneuroses. I have used all the latter for years before I undertook psychoanalysis, and I have discarded them all for the latter. I would not have you believe that I hold that the psychoneurotic cannot get well of his ailment by any of the host of other plans of psychotherapy; indeed, one of the most miserable of psychoneuroties, a personal friend of mine, has been relieved of his disorder for many years by Christian Science.

Psychotherapy, and therefore psychoanalysis, in its fullest sense, is a jealous goddess and demands much of one who would follow its practice. It will not only always demand extraordinary amounts of time and patience from one who uses it, but I believe many who will undertake the work will prove totally unqualified to practice it, and in consequence we must be prepared to see the method fail and many reproaches heaped upon its misapplication and the misapplier. One of its very regrettable features is that it takes the psychoanalyst very far afield from the ordinary practice of medicine, and especially from all the phases of organic neurology. Indeed, it would seem in some instances to be almost a separate profession from that of medicine as we ordinarily see it practiced. In some instances our best analysts are not physicians at all. I believe, however, every analyst should have a careful and experienced medical and neurological training. A definite medical sense is absolutely necessary in dealing with mental and nervous disease. Many of you would think it unnecessary for me to speak of this, but I wish to remind you that a large part of the work in the care and treatment of the feeble-minded still rests in the hands of psychologists or in lay hands untrained in either psychology or medicine. I hesitate to give you what I think the full measure of a man and physician should be to undertake psychoanalysis, for you will see I do not consider it to be a method which even the average well-trained neurologist may follow at option. There is no reason, however, why all of us should not know about its principles and its use. I think none of us need feel that this plan of treatment is in any real danger of getting too remote from real service to legitimate medicine, simply because we hear that some of its votaries are setting folk-lore, mythology and many phases of psychology and metaphysics on a firm foundation and meaning. It will be remembered the enthusiastic workers in neurology at its inception happily went far afield and cleared many an obscure issue in kindred specialties of medicine. Most of us can remember at the advent of bacteriology one had need but to scrape one's tongue before breakfast and become famous by describing a new germ before dinner.

Now about neurotics: It now seems possible that in a few years sufficient careful studies of the more common forms of the psychoneuroses will have been made so that we may lay down some rather specific and general rules in parental and school education for the proper bringing up of neurotic children so the neuroses may be less frequent, or at least much easier handled when the psychoneuroses do occur. Then, too, the accumulated facts will surely point the way to wiser and more tolerant customs of society toward the unfortunate neurotic, when we learn that certain kinds of physical and mental training are important for the proper balance of the emotional life and that all sexual matters will have their proper place in a cultural education. Many of these points have already been so carefully and wisely set forth by Dr. Putnam that I shall but refer you to his masterly writings upon this subject.

Finally, in closing, I believe we should all hold ourselves open for the reception of evidence of the inner mechanisms of the psychoneuroses and the insanities, for in this latter respect we at last have much hope that even paranoia, the depressives and dementia precox in the exact manner of their mental development will not long remain in mystery. I do not mean we shall know their physical causes by these intense analyses, but we shall gain an insight into their precise mechanisms and find how they break down into the several psychoneuroses and psychoses.

MEXICAN NOTES.—Report from Mazathan, Mex., on June 1 states that smallpox is epidemic among the constitutionalist garrison of Culiacan, the capital of Sinaloa. On June 1 the United States Army completed its first month's occupation of Vera Cruz. During this period over 7000 soldiers and marines have been ashore without a single death among their number from disease. On June 5 there were 78 sick among the soldiers at Vera Cruz, a percentage of 2.23, and 101 sick and injured among the marines, a percentage of 3.3. There are several cases of malaria aboard the despatch boat *Dolphin* off Tampico. The army medical corps now consists of 445 members, with 89 in the active reserve corps and 60 in the dental corps.

INDICATIONS FOR OPERATION ON THE SEMINAL VESICLES.*

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MY early experience with operative work upon the seminal vesicles was limited to excision of the organs when they had become diseased by tuberculosis. In 1911 I began removing vesicle, vas and testicle, in those cases presenting evidence of tuberculous epididymitis with spermatic cord involvement. It seemed to me poor surgical judgment to leave an infected vas and vesicle, when excising a tubercular deposit in the epididymis, as it would be to leave behind a known tuberculous ureter when removing a tuberculous kidney.

Since this phase of the symposium is to be elucidated by Dr. Young, I make mention of it merely to explain that it was through this work that I learned how comparatively simple it was to reach the seminal vesicles by perineal exposure.

I believe one of the main reasons why surgery of these organs has remained undeveloped for so long a period, has been largely due to the current opinion that the vesicles were of such difficult surgical access. One American surgeon has for the past ten years devoted a large amount of his time to surgery of these organs and has contributed much to the literature. He has apparently not aroused the interest of the profession proportionately to the importance of the subject. Needless to say I refer to the work of Dr. Eugene Fuller of New York.

While some may not be as enthusiastic over the possibilities of drainage of the seminal vesicles, nevertheless, when the history of the surgery of these organs is complete, his will be the glory of one who has blazed the trail. Our apathy in this direction is responsible for this admission which I must make, namely, that probably no surgeon in this room can, at the present stage of our knowledge, definitely outline just what are all the indications for operation upon the seminal vesicles, or how it is possible in many cases of systemic toxemias or joint lesions conclusively to prove disease of the vesicles to be the causative factor.

We know that certain portions of the body by reason of histologic formation and anatomic situation are prone to chronic infections.

These infections are characterized by focalization, extreme chronicity with acute exacerbations, and protean systemic manifestations, due to a constant discharge of infectious emboli into the circulation. The interrelationship of endocarditis and infected tonsils; urethritis and gonorrheal rheumatism, "sore throat" and nephritis has been conclusively proved. These examples have attracted more investigation because the interrelationship was more obvious than with other forms of chronic sepsis. The idea has become dominant that many forms of arthritis can be explained as end results of focal infection; however, the determination of these points of infection and their correlation with the systemic signs, has been a matter of difficulty. Nevertheless, it can scarcely be doubted that many of the arthritides have their origin in occult focal infections. We believe that chronic infections of the seminal vesicles are an undoubted source of some of the deforming arthritides whether they are of the atrophic or hypertrophic type. Infections within the vesicles do not lend themselves to a natural drainage by reason of their relation and peculiar anatomy. It is questionable if an infection of the vesicle is ever rendered sterile by natural drainage through the ejaculatory duct into the urethra. On the contrary it would seem that resolution takes place by an encapsulating process with scar tissue formation.

The amount of cicatrix and perivesiculitis found at operation in most of our cases would presuppose that the infection had been "walled off" by scar tissue, rather than resolution having taken place with sterilization of the infectious foci. Such a condition continuing, a chronic sepsis of low virulence may occur, a bacteriemia which Adami designates as a subinfection. This chronic sepsis finally produces a break, so to speak, in the immunity of the individual and then there appear, after a variable time, systemic manifestations. The occurrence of systemic manifestations is by no means entirely confined to the joints but may affect other tissues—endocardium—renal epithelium, etc. The reason the joints are so frequently involved would seem to rest upon a number of factors. First, the synovial membrane is a tissue not particularly resistant to infectious processes. Secondly, the synovial fluid is lymphocytic rather than leucocytic and does not offer a marked phagocytic power. Thirdly, the almost constant irritation of joint surfaces incident to locomotion, etc. A clinical fact not to be lost sight of, is that disability in a joint very easily makes its presence known, whereas the same is not true of an infection of the heart or kidney, where it may exist for years without making its presence known.

Chronic infection within the vesicles by the time systemic manifestations develop, has undoubtedly become a mixed infection, with pyogenic bacteria as the predominant type. Cultures from the vesicles at this period are uniformly negative for gonococci but reveal an almost constant growth of pyogenic bacteria. Rosenow has demonstrated that the cultural characteristics and morphology of bacteria may be modified or even undergo mutations by an alter-

* Read as part of a Symposium, "The Genito-Urinary Tract as a Factor in the Production of Chronic Toxemias and Joint Lesions," before the New England Branch of the American Urological Association. Boston Medical Library, Boston, February 17, 1914.

ation of the environment; and upon the development of different strain streptococci and pneumococci from a single strain streptococcus or pneumococcus, together with the study of the lesions produced by these different strains, a reasonable explanation may be deduced for chronic rheumatism and rheumatoid conditions.

If we follow the reasoning of Adami, relative to subinfection, and the researches of Rosenow in the production of experimental myositis in rabbits, and apply it to our seminal vesicle work, we find an easy explanation for many of the phenomena encountered. For example, let us suppose that the gonococcus, having been liberated from its usual habitat—the genito-urinary tract, into the general circulation undergoes metamorphoses and emerges as a different form of coccus. Upon focalization, the lesion produced will necessarily conform to the type usually caused by that group of bacteria which it now resembles. Let us believe that in many instances the metamorphosed gonococcus appears as a streptococcus, or that the lesion produced in the vesicle by the gonococcus has attracted to it other bacteria as a suitable resting place for multiplication, and the various systemic manifestations of gonorrhea are explained.

The particular grade of attenuation of the bacterium will determine the severity of the lesion.

The milder grades will localize themselves in the muscle capillaries, multiply but for a short period and disappear by lysis, the symptoms produced being only muscular aches and pains. With reference to these infectious emboli, "it appears that as soon as the bacteria set up a reaction, whether by their mere mechanical presence, or by endothelial phagocytosis of some of their number and liberation of their endotoxins, that reaction is adequate to destroy the rest of the bacteria, and this with relatively very slight accumulation of wandering cells. But the liberated and diffused endotoxins are sufficiently powerful to destroy the more highly differentiated cells in the immediate neighborhood, and following this destruction there is, in favorable cases regeneration or in unfavorable cases, a replacement and even a productive fibrosis" (Adami). Thus is explained the nature of the more severe cases of joint disease where the lesions found are of the nature of a connective tissue hyperplasia.

The rarity of endocarditis following gonorrhea in adults, and the possibility of endocarditis in children in certain instances being primarily due to a gonorrheal infection, is also made clear. In adults the heart valves have become nonvascular, the arterioles present in childhood in the proximal two-thirds of the cusps having become obliterated.

The work of Opie on experimental production of cirrhosis of the liver, by action of B. Coli, that of Gaskell, of Libman and Baehr on the form of nephritis produced by streptococcal embolism in the capillaries of the glomeruli, are strong arguments for recognition of this condition of subinfection as the underlying cause. The chief characteristics of the condition of subinfection are: it is recurrent, a lesion occurring from it is not suddenly produced but takes place gradually as the "summation of a succession of minute insults to the tissues, sometimes occurring within a few days or weeks but often extending over years" (Adami). Those of you who are familiar with bacteriologic advances may consider that I am wandering from my subject,—the indication for operation on the seminal vesicles. Nevertheless it has seemed to me advisable to incorporate the foregoing in this paper, if only to strengthen the argument that there are indications for operating upon the vesicles.

In selecting cases for operation, and by operation I am referring only to surgical drainage of the vesicles, I have grouped them into three rather general classifications—pus, pain and rheumatism.

Pus Groups.—(a) Those in whom suppuration is the predominant feature. This will include definite abscess formation within or around the vesicles. The surgical indication in such cases is so obvious that but mention is made of it. However there is a border line group, namely those who develop an acute seminal vesiculitis and prostatitis during the course of a specific urethritis which does not terminate in localized abscess, who I am inclined to believe would fare better if subjected at once to operation rather than be treated by expectant measures.

These are the cases in whom rest in bed, hot rectal irrigations, etc., cause a subsidence of the acute symptoms and we compliment ourselves that we have "aborted" a prostatic abscess, only to have a long tedious case of chronic seminal vesiculitis to deal with. I have not had sufficient experience as yet with operating upon this type of case to warrant advocating it as a routine procedure, but when we reflect that from the anatomic arrangement of the tube-systems of the vesicles, the chances for early resolution and spontaneous cure are only four per cent., it seems that such a procedure might be justified, especially if we find that drainage of the vesicles produces a permanent cure and not merely a transient amelioration of symptoms.

(b) Cases of recurrent epididymitis following acute urethritis and vesiculitis, the operative indication being vesical drainage combined with epididymotomy.

(c) The chronic type of seminal vesiculitis, often rather difficult to diagnosticate as the symptoms are not so well pronounced as in the acute form.

The history of urethritis, or stricture; discomfort in the perineum, increased upon difficult defecation; tenesmus; frequent erections without sexual stimulus and frequent nocturnal emissions, often bloody in character; and the presence of pus in the semen. These cases have

to be decided upon their individual merits according to the effect the symptoms are having upon the patient's general health, since it is perfectly possible for a patient to suffer from the above without greatly impairing his general health or sexual activity.

Pain.—The group in which persistent perineal pain has seemed a sufficient indication for operation have presented some interesting features.

Three patients, with histories of more or less constant perineal ache associated with recurrent urethral discharge have been found at operation to be suffering from calculi of the seminal vesicles. In but one was this possibility considered before operation. This patient gave a history of "colique spermatique." The colic occurred during coitus and the pain experienced was excruciating. The acuteness of the pain subsided and a persistent soreness and ache in the perineum remained. The calculi in all these cases were found to be composed of phosphate and carbonate of lime and were true calculi.

I am under the impression that calculus formation in the seminal vesicles is more frequent than has been formerly considered. Given a chronically inflamed vesicle with a partial occlusion of its outlet, ideal conditions are indeed present for their production, and doubtless further collated operative data will prove this contention.

Rheumatism.—The indication for operation in cases where joint lesions are present is definite; namely, if the focal infection can be proved to be the seminal vesicles,—drain them—but here is the difficulty of the whole question.

Llewellys F. Barker in his original article, "Differentiation of the Diseases Included Under Chronic Arthritis" (*American Journal of Medical Sciences*, Jan., 1914), states as follows: "We should also when using the term 'infectious' keep clearly in mind the difference between (a) an infection in a joint-system itself, and (b) an infection somewhere in the organism as a whole, with secondary non-infectious changes (toxic, nutritive, trophic) in a joint-system. I emphasize this point because of the great importance, in the chronic arthropathies, of minute foci of infection distant from the joints and of their removal as a therapeutic measure. Chronic inflammations of the paranasal sinuses (including the antrum of Highmore), chronic tonsillitis, chronic otitis media, pyorrhea alveolaris, alveolar abscess, chronic bronchitis, chronic ulcerative enteritis, chronic appendicitis, cholecystitis, chronic pyelitis, chronic cystitis, chronic urethritis, spermatocystitis and prostatitis, chronic salpingitis and chronic endometritis may be mentioned among the many possible foci whence influences injurious to the joint-system may emanate, and this without prejudice as to whether these influences are (1) metastatic infection, (2) toxic, (3) neurotrophic, or (4) noxious in all other ways.

It may, therefore, be really appreciated that before a definite conclusion can be arrived at as to the influence a diseased vesicle may exert upon the production of a chronic arthropathy in any given case, a very great amount of differential exclusion must be seriously considered.

My experience with drainage of the vesicles in patients suffering from infectious arthropathies has been limited to the acute or subacute varieties. In every case a recent gonorrhea has been present so that the relationship between disease of the vesicles and the joint seemed definite. In every case immediate cessation or amelioration of the joint symptoms has resulted. I am firmly convinced that drainage of the seminal vesicles offers more for the cure of typical cases of gonorrheal rheumatism than any other means as yet suggested.

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CANCER OF THE UTERUS.

THE POSSIBILITIES OF CURE BY THE RADICAL ABDOMINAL OPERATION. CERTAIN ORIGINAL METHODS OF OPERATING. INCLUDING AN ANALYSIS OF 367 CASES AT THE MASSACHUSETTS GENERAL HOSPITAL.

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(*Concluded from page* 868.)

THE INCISION.

The satisfactory completion of this operation with wide removal of the parametrium and upper portion of the vagina necessitates a generous exposure of the pelvic field. The incision should be in the median line and should go down to the symphysis and always must be carried above the umbilicus. I have in most cases adopted a modification of Gibson's method in operating for low ureteral stone; namely, cutting across the anterior sheath of the recti just above the symphysis. This alone gives appreciably more room. In obese cases or difficult cases I do not hesitate to partially divide the tendinous insertions of the recti muscles. It is a relatively easy matter to repair the recti by mattress stitches at the end of the operation.

MANAGEMENT OF THE URETERS.

The dissection and handling of the ureters, freeing them from the parametrial tissue, is the most important technical part of this operation. The object is to have them free so that they can be lifted up and out of the pelvis, and at the same time preserve their own blood supply and thus avoid subsequent necrosis and fistulae formation. The method introduced by Howard Kelly and still, I believe, practised at Johns Hopkins, of inserting ureteral bougies before operation as aids in finding and dissecting the ureters, I only mention to condemn. It is time-consuming and unnecessary not only, but, on the other hand, it is a distinctly dangerous procedure because the bougies act as rigid splints and prevent displacement of the ureters and at the same time exert a counter resistance and pressure and so contribute to necrosis. It is seldom difficult to locate the ureters if one begins to look for them high up near the bifurcation of the iliac arteries. In obese patients, and cases which are complicated by old pelvic infection with adhesions, the finding and isolating of the ureters may be most difficult.

I have perfected an original method of using tapes to retract and lift the ureters out of the way, protecting the ureteral blood vessels by rolling over a fold of the peritoneum. After the ovarian artery has been tied and the broad ligament opened up, the peritoneum being divided above the bifurcation of the iliac arteries, the ureter is exposed lying on the inner and posterior peritoneal flap of the broad ligament. The internal iliac artery is then exposed and ligated with chromic catgut, after which the posterior peritoneal layer of the broad ligament is incised below the ureter midway between the bifurcation of the iliac arteries and the uterus, parallel with the ureter and about half or three-quarters of an inch away from it, and through this slit tapes one-half an inch wide, wet with sterile salt solution, are passed, surrounding the ureter. Traction on these tapes serve to roll a cuff of peritoneum about the ureter, this cuff can be more definitely demarked by vertical incisions. I have found that with this method I could make fairly strong traction on the ureters without damaging their blood supply.

In Figures 2 and 3 I have tried to show in a diagrammatic way the method of making the broad ligament cut and applying the tapes. I have found the method to be of great value in dissecting the vesical end of the ureter, and also, more especially, when dividing the parametrium and cutting across the vagina. In my more recent operations I have not hesitated to use additional tapes under the ureter itself close to the bladder in the final stage of the operation using gentle traction. I have never had an ureteral fistula, although in many cases I have made fairly strong traction on the ureters. It should be stated that the ureter should be traumatized as little as possible. If its blood vessels are injured even a little, necrosis and fistula formation can occur. In 500 of Wertheim's cases ureteral fistulae occurred thirty-two times, and he says that in twelve of these cases it occurred where separation had been easy and there was no reason to suspect injury. In Wertheim's experience the ureter is rarely if ever involved in cancer, although it may be

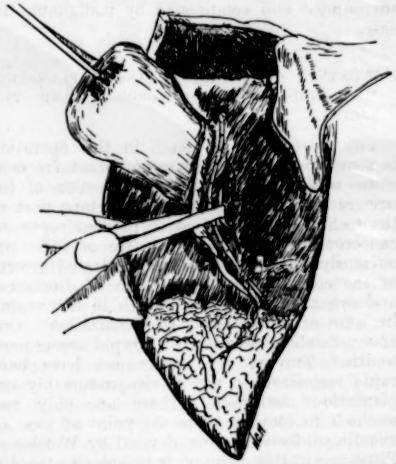


FIG. 2.—Showing method of passing tapes around the ureters through a cut in the posterior layer of the broad ligament.

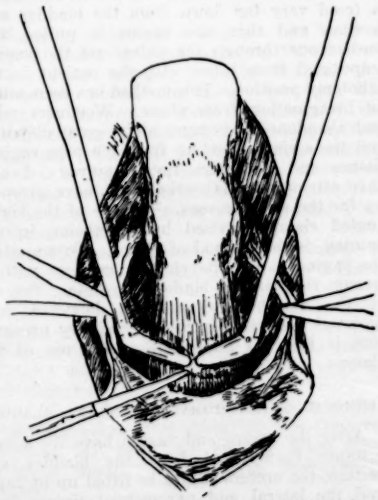


FIG. 3.—Showing method of using tapes in elevating and retracting the ureters.

surrounded and compressed by malignant disease.

PREVENTION OF INFECTION AND IMPLANATION METASTASIS FROM THE GROWTH AND THE VAGINA.

The chief cause of death in this operation is septic peritonitis; the second most frequent cause is shock. Next to the dissection of the ureters I consider the most important part of the technique the method to prevent septic or cancerous infection. The source of infection, obviously being the ulcerated infiltrated growth of the cervix, and the presence of discharges and organisms from the growth in the vagina in spite of all attempts at sterilization. One of my fatalities was due to a rapid septic peritonitis. Two of my recurrences have been rapid metastasis in the pelvis, presumably implantation metastasis. There are only two methods to consider from the point of view of avoiding infection. One, devised by Werder of Pittsburg in this country, is technically too difficult and dangerous to be considered as a routine procedure. In this method the vagina is freed very far down from the bladder and rectum, and then the uterus is pulled and pushed out through the vulva and the vagina amputated from below with the patient in the lithotomy position. This method has been called an invagination from above. Wertheim tried and abandoned it because of its great difficulty and the serious bleeding from the para-vaginal tissues and the extra time required. I also have attempted this method, but have given it up for the same reasons. The use of the right-angled clamps devised by Wertheim, in my opinion, is the method of choice. To amputate the vagina I use the electric cautery with a strong, right-angled blade if possible. The use of the curette and cautery, however, and thorough dissection in the preliminary preparation is fully as important as the use of the clamps.

REMOVAL OF THE PARAMETRIUM AND GLANDS.

After the uterus and vagina have for a long distance been freed from the bladder and rectum, the ureters should be lifted up by tapes and the lateral and parametrial tissues from above the internal os well down the sides of the vagina should be removed with scissors close to the pelvic wall. It is in this removal that one is likely to have great trouble with obstinate venous bleeding deep down in the pelvic hole. After the operation has to all intents and purposes been completed, I have not infrequently had to spend half an hour in patient effort to stop this deep venous bleeding. I have never had a case in which I could not do so, although others have reported deaths from uncontrollable hemorrhage in this region. The use of small right-angled hemostats is very important in clamping off the parametrium. Figures 4 and 5 illustrate the extensive removal of the parametrium and the vagina. This specimen is from the same case as the chart in Figure 1.



FIG. 4.—Specimen from case whose chart is shown in Fig. 1. Note wide removal of parametrium and upper portion of vagina.



FIG. 5.—From same case as Fig. 4.

In cancer of the cervix the first glands involved are the iliac, those glands lying between the internal and external iliac arteries. The

glands next are the obturator and last the sacral and inguinal. Cases in which the sacral and inguinal glands are involved are beyond doubt absolutely unfavorable. It is impossible to remove all the glands. Wertheim's decision that only glands that are palpably enlarged should be removed is now accepted by most operators. Enlarged glands are not necessarily cancerous by any means. In over half of my cases in which the iliac glands were distinctly enlarged and removed, the pathologist reported, after a careful serial examination, no cancer, but enlargement due to hyperplasia; that is to say, enlargement was due to the arrest of septic material from the ulcerating growth.

A thorough survey early in the operation for glandular conditions is necessary, and it should be understood that to do this properly the peritoneum must be split and the great vessels laid bare, for in no other way can one determine accurately by sight and palpation whether the glands are pathological. If numerous enlarged nodes are felt, especially in the sacral chain, a radical operation is inadvisable and the operator should content himself with a simple hysterectomy. If the iliac and obturator groups are moderately involved, the glands should be removed as the last thing in the radical operation. Theoretically, they should be removed at the first of the operation, or in continuity with the parametrium, but it is impossible in this operation to establish a lymph block as in operations in the breast and neck. In many cases the glands can be removed easily, but in cases where they are adherent to the iliac veins they will be removed with difficulty and risk.

CONTROL OF HEMORRHAGE.

In my last paper on cancer of the uterus, I said it was problematical how much ligation of the internal iliac arteries would interfere with pelvic nutrition and especially influence post-operative cystitis, and in cases where a large dissection had been made, would increase the chance of sepsis and necrotic sloughing. Since that writing I have ligated the internal iliac arteries in the majority of my cases. Instead of adopting the former method, that of Wertheim, of tearing through the tissues along the pelvic wall and lifting up the uterine arteries on the finger right after tying the ovarians, I have carefully exposed the ureters on the inner layers of the broad ligaments, and then deliberately tied the arteries on both sides. While, because of the free anastomosis, the ligating of the iliacs does not control the hemorrhage from the uterines absolutely, it enables a much clearer dissection, an easier freeing of the bladder and a deliberate securing of the uterines when they are cut across, also diminishes arterial bleeding deep down when the vagina and rectum are freed. I am convinced from my cases that this procedure does not in any way cause bladder complications or necrosis; cases in which I have done this have done fully as well as those in which I have not done so. This procedure is especially valuable in cases of obesity and in which the room in the pelvis is small.

DRAINAGE.

Drainage through the vagina with long strips of iodoform gauze, the peritoneal surfaces being sutured over so as to form a floor above the gauze is, in many of the cases, all that is necessary. The gauze strips should be started on the fifth day and removed an inch or two daily until all has been withdrawn. In a few cases where there is reason to suspect unusual infection of the peritoneum, where the bowel has been injured or the bladder resected, abdominal drainage also is wise, and in my recent cases, where I had reason to fear unusual accumulation of blood below the peritoneal floor about the vaginal drain because of obstinate venous oozing, I have also used the abdominal drain at the lower angle of the abdominal wound for a few days and have been surprised to see the amount of serous drainage which this has taken care of.

The after treatment is simple. The head of the bed should be elevated a foot for the first week and salt solution given by rectum every five or six hours. In cases where one has reason to suspect unusual infection of the peritoneum, continuous salt solution by rectum is advised. The use of the inlying catheter for three or four days is a routine followed in my cases, and this, with the use of urotropin will in most cases prevent any unusual post-operative cystitis.

Of my 23 radical hysterectomies for cancer of the cervix at the hospital four died as a result of the operation, one on the second day of peritonitis, a very difficult case in a very obese woman; one in twelve hours of shock; one on the tenth day, cause of death not made out at autopsy; one case died in the fifth week of iliac thrombo-phlebitis.

Five of my first six cases have lived from five to thirteen years after operation free from recurrence. All have been seen or heard from within a month. Very briefly, they are as follows:

Elizabeth C., W. S., Vol. 369, p. 120, Jan. 4, 1901, age 35 years. Symptoms,—pain and flowing for six months. Had been curetted by a doctor. Cervical growth size of half a dollar, marked thickening and induration in left broad ligament. Iliac glands on both sides removed.

Pathological Report. Squamous cell carcinoma of the cervix; glands not malignant.

Madeline V., Hospital No. 134507, S. S., Vol. 83, p. 287, Oct. 16, 1903. Age, 48 years. Symptoms,—for five months excessive flowing and pain. Extensive cauliflower growth of cervix, uterus movable.

No thickening in the broad ligaments. No glands removed.

Pathological Report. Squamous cell cancer of the cervix.

JANE S., Hospital, No. 140882. S. S., Vol. 107, p. 143, Jan. 14, 1905. Age, 60 years. Symptoms,—for two to three years bloody discharge, some pain, loss of weight and strength. Cervix hard and indurated, several deep ulcerations, uterus movable, broad ligaments not thickened. One enlarged gland in the left iliac region removed.

Pathological Report. Squamous cell cancer of the cervix; gland non-malignant.

ETHEL H., Hospital No. 150169, S. S., Vol. 137, p. 23, Nov. 6, 1906. Age, 27 years. For five months symptoms, flowing and pain. Had been curetted by a doctor. Badly eroded cervix with free hemorrhage. On examination broad ligaments not indurated. Bladder torn in operation. Iliac glands on left enlarged and removed.

Pathological Report. Squamous cell carcinoma of the cervix. Glands not malignant.

ROSE S. E. S., Vol. 620, p. 105, Hospital No. 159940, Aug. 24, 1908. Age, 35 years. For fourteen months symptoms, constant flowing and foul discharge. Cervix hard, nodular and excavated. Uterus not freely movable. Induration in both broad ligaments. No glands removed.

Pathological Report. Squamous cell cancer of the cervix.

To have cured five out of six cases is, obviously, largely a matter of luck. I would not be surprised if my last six cases died of recurrence, but I am greatly encouraged to go on with the radical operation as I have been doing it.

TABULATED ANALYSIS OF THE CASES AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1900 TO 1913 INCLUSIVE.

Total number of cases.....367
- Personal cases of Dr. Cobb.....70
- Refused operation..... 4
- Inoperable..... 57
- Palliative operations.....173
- Vaginal hysterectomies..... 17
  - For cancer of cervix.....13
  - For cancer of fundus..... 4
- Abdominal hysterectomies.....116
  - For cancer of cervix.....89
  - For cancer of fundus.....27
- Operability 36.2%

230 came too late.

Since August 1, 1911 (Dr. Cobb).....50
- Inoperable 5
- Palliative operations..... 23
- Radical operations..... 22
- Operability 44%

VAGINAL HYSTERECTOMIES.

Total number.....17
- Immediate mortality.....None
- For cancer of cervix..... 13
- For cancer of fundus..... 4

Operations over 5 years ago.....14
- Traced 8
- Cured 2

Both cancer of cervix.

Note: No cures in fundus cases.

Cures 25%

Since 1910.....3 cases
- Cancer of cervix.....2
- Cancer of fundus.....1

No recurrence one to two years.

Dr. Cobb has no vaginal operations.

ABDOMINAL HYSTERECTOMIES FOR CANCER OF FUNDUS.

Total number.....27
- Personal cases of Dr. Cobb..... 7
- Immediate mortality.....4 or 14.8%
- Surviving cases.....23
- Cases traced.....22

Operations over 5 years before....14
- Cured .....6 or 42.8%

One case free from cancer....4½ years

One case free from cancer....1¾ years

Personal cases, Dr. Cobb.....7
- Immediate mortality.....None

No cases over 5 years

One death from recurrence within a year.

ABDOMINAL HYSTERECTOMIES.

(NOT RADICAL.)

Total number.....49
- Immediate mortality.....17 or 34.6%
- Surviving cases.....32
- Traced 29

Operated on over 5 years before.....26
- Cured .....5 or 19+%

2 cases free also from recurrence, from 3 to 4½ yrs.

(RADICAL.)

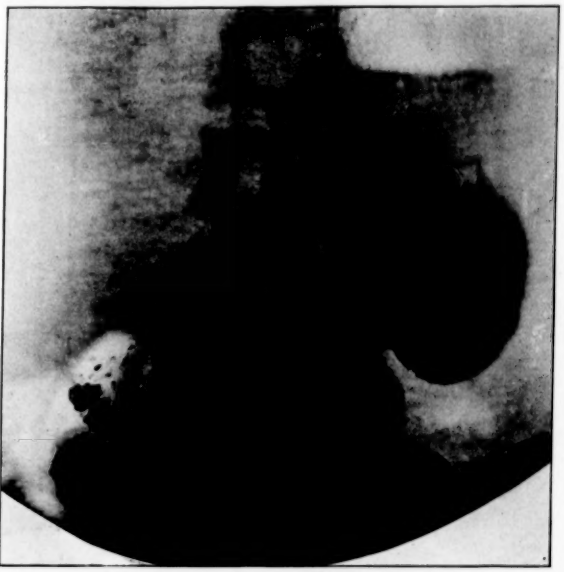
Total number.....40
- Immediate mortality.....9 or 22.5%
- Surviving cases.....31
- Traced 31

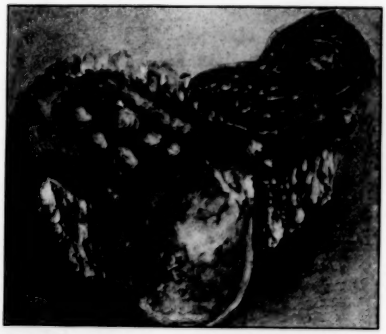
Operated on over 5 years before...14
- Cured .....7 or 50%

RADICAL (WERTHEIM) OPERATIONS FOR CANCER OF CERVIX.

Total number.....40
- Personal cases of Dr. Cobb.....23
- Cases of other operators.....17
- Cases traced.....All
- Immediate mortality.....5 or 29+%
- Of the 12 surviving, operation over 5 years..... 8
- Cured .....1 or 12.5%
- Alive and free from cancer for 3 years 2

Personal cases of Dr. Cobb.....23
- Immediate mortality.....4 or 17+%
- Cases traced.....All
- Cases over 5 years ago..... 6
- Cured 5
- Cases since August 1, 1911.....17
- Recurrences 3
- Free from recurrences as yet..11
- Free from recurrence, over 1 year 3







Clinical Department.

I. PRIMARY SARCOMA OF STOMACH.

II. PYLORIC STENOSIS OF THE NEW BORN.

III. CONGENITAL INTESTINAL OBSTRUCTION IN A NEW-BORN BABY. REPORT OF CASES.

By A. R. Kimpton, M.D., Boston.

PRIMARY SARCOMA OF STOMACH.

The following case is of interest, not only because of the comparative rarity of gastric sarcoma, but because of the fact that the patient was known to have had an abdominal tumor for years. Yet at the time of operation she was not anemic or emaciated, nor did she have any gastric symptoms other than indigestion (apparently hyperacidity).

The abdominal tumor was supposed to have been an ovarian cyst, with a long pedicle, that would at times become partially twisted and cause some disturbance. The patient was seen by myself for the first time on the morning of the operation, preparations having been made by another surgeon. He being ill that day, I was asked to operate, as the patient was prepared and did not wish to wait. The abdomen was opened, expecting to remove an ovarian cyst.

The following history was obtained after the operation:—

Physician's wife, 30 years of age. Father and mother living and well. Remainder of family well. As a small girl from three to five years of age, she was subject to severe attacks of pain in epigastrium and other regions of the abdomen. These attacks lasted until relieved by drugs, and were followed by great weakness lasting three or four days. The physicians called were unable to assign any cause. On one occasion ether was administered to relieve the patient. Menses began at eleven years of age and she had much pain at these times up to seventeen years of age. As a young girl she was troubled a great deal with "sour stomach," and at the time of her marriage was in the habit of taking a large amount of sodium bicarbonate, which she gradually ceased to do, and for eighteen months had no trouble at all with her stomach.

Patient states that she discovered the tumor when eleven years old, but never spoke of it until after marriage, four years ago. It has troubled her more or less by occasionally being sore and painful. Within the last two years the tumor has increased in size gradually and has given more discomfort in every way. The digestive upsets have been more frequent, at times necessitating only liquid diet, but the patient never vomited.

With the exception of these attacks of "indigestion" the patient considered herself in perfect health and certainly appeared perfectly well.

The tumor was movable and the probable diagnosis was an ovarian cyst. The one thing against it was that it could not be brought into the pelvis, although it could be brought as low as the umbilicus. Many of her symptoms could have been laid to the dragging and pulling of almost any abdominal tumor.

Operation, December 29, 1913. Abdomen opened through an incision made below the umbilicus, expecting to find an ovarian cyst. Pelvic contents were found to be normal and a movable mass was found in the upper abdomen, which could be pulled down as far as the umbilicus. There were no adhesions. Extending the incision to a little above the umbilicus, it was found that a tumor of the stomach was to be dealt with. There was not only the large tumor, but many smaller ones. A choice between a simple exploratory operation and a very extensive resection had to be made. The patient was in excellent condition. The tumor mass was local so far as could be made out, although there were palpable somewhat enlarged lumbar nodes. A partial resection of the stomach was decided upon. It was necessary to resect so low on the duodenum that the stump was turned in with considerable difficulty. The stomach, likewise, had to be resected high in order to take in all of the tumor. A conservative estimate of the amount of stomach removed would be one-half. The resection was done with an actual cautery. The lines of suture were reinforced with omentum so far as possible. The remaining portion of the stomach was so small that a posterior gastro-enterostomy was accomplished with some difficulty. There were some enlarged nodes along the greater curvature of the stomach which were removed with the tumor. A cigarette drain was left in the upper abdomen and the abdomen closed in layers. The patient went back to bed in excellent condition with a pulse of 110. The drain was removed on the second day and was not replaced. The convalescence was uneventful throughout.

The patient left the hospital on the twenty-first day, having lost only three pounds in weight, and since then has been in perfect health. A bismuth x-ray was taken six weeks after the operation by Dr. George, as shown by the illustration. The specimen (see illustration), was examined by Dr. William F. Whitney, and his report is as follows:

Microscopic Examination showed a solid growth of irregularly rounded cells separated into small lobules by connective tissue bundles, and with but little intercellular substance between the cells. In many of the cells the nuclei were eccentric. Here and there were mitotic figures and double nuclei were occasionally seen.

Diagnosis. Round cell sarcoma.

The small tumors were examined as well as the larger.

As the drawing shows, the tumors varied in size, some being pedunculated, were largely at the pyloric end of the stomach and did not cause any stenosis. The largest tumor was partly broken down. This is the usual condition found in the round-celled type, which is the most common type of gastric sarcoma. Dr. Whitney agrees that, although the pathological report was not that of myosarcoma it would seem fair to assume, from the long duration, that the growth was originally a myoma.

PYLORIC STENOSIS OF THE NEW BORN.

This case is reported for the purpose of showing a picture of the condition, not that it adds anything unusual. The baby, sick for five days with vomiting, was seen then by Dr. John Mitchell, who made the diagnosis.

Boy, three weeks old. First baby. Normal delivery and apparently a normal baby. Nursed well for two weeks, gaining over eight ounces the first week, and about the same the second week. Began vomiting the first day of the third week, and has been vomiting now for six days. Vomits all the milk taken, either at once or soon after nursing.

Examination. Well developed child and apparently still in fair condition. Rectal examination reveals nothing abnormal. Abdomen not distended. Palpation of abdomen shows a tumor in the region of the pylorus. This was easily palpable by placing the fingers low on the abdomen and gently sliding the fingers under the edge of the liver.

Before both parents could be reached and preparations for operation made the baby died. The pathologic report by Dr. Whitney was the usual type of hypertrophic stenosis. The photograph shows well the tumor and its customary extension along the greater curvature of the stomach.

It would seem that these cases had best be considered as emergencies, and possibly cases seen late might be saved by doing a jejunostomy through a left rectus incision. This could be done very rapidly and practically without general anesthesia.

CONGENITAL INTESTINAL OBSTRUCTION IN A NEW-BORN BABY.

Case was seen with Dr. A. L. Brown of Winchester:—

Italian baby girl four days old, born without medical attendance. Had had no movement since birth. On the second day parents noticed that baby's abdomen was distended, but did not call a physician until the fourth day, when the child began to vomit. Baby had been to the breast a few times.

Examination showed a well developed child with a much distended abdomen. Rectal examination showed a patent rectum as high as could be reached, and from the rectum an inspissated, putty-like material was being discharged. There was no meconium, but a large amount of this putty-like substance had been passed.

It was decided to quickly make an artificial anus in the hope that more could be done later should the child be so fortunate as to live. This was done, the abdomen being opened through a left rectus incision. A very definite volvulus reduced itself as some loops of small intestine came into the wound, but no gas or meconium was passed. There was some free, blood-stained, fluid in the abdominal cavity. No large intestine could be found, therefore a fistula was made in the most dilated loop of small intestine handy. Through this fistula a large amount of meconium was passed. No search was made for the cause of obstruction. This took a very few moments and the baby's condition was little worse after the operation, but the child died a few hours later.

The post-mortem findings were as follows: The intestinal tract from the stomach to within about three inches of the ileo-cecal valve was normal. Here there was complete obstruction. Meconium had never passed this point. The obstruction was caused by a firm band, coming from the right side of the pelvis and grasping the ileum in such a way as to cause a complete twist. The large intestine was a mere patent band. The material it contained arose from its own secretions.

The fact that the baby did not vomit until the fourth day, and that enough of this inspissated material had passed to empty the large intestine, should have led to the conclusion that the obstruction was low in the small intestine.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

THE VACCINE TREATMENT OF SKIN DISEASES.—RESEARCH STUDIES IN PSORIASIS.—ARTIFICIAL ERUPTIONS FROM CRUDE COAL TAR.—PEMPHIGUS TREATED BY QUININE INJECTIONS.—ALOPECIA ATROPHICANS.—MEDICAL COSMETICS OF THE SKIN.

THE VACCINE TREATMENT OF SKIN DISEASES.[1]

At the meeting of the 17th International Congress of Medicine, held in London in August, 1913, Dr. T. C. Gilchrist, in the dermatological section, opened a general discussion on the above subject. He said in his paper that vaccine therapy had now reached, especially in America, a stage somewhat similar to that of x-ray therapy during the first two years of its application, when collectively it probably did more harm than good. Many people are now so prejudiced against x-ray treatment that they refuse to have anything to do with it, and so it is getting to be with vaccine treatment. He compares the treatment by commercial mixed vaccines, containing often as many as nine or 10 kinds of organisms, with the old "shot-gun" prescriptions, when it was hoped that the remedy would hit something.

Gilchrist records his experience of vaccine treatment in about 800 cases of skin disease during a period of six years. He asserts that he has had brilliant results, moderate successes, and many failures, probably about in equal proportions. He considers that the only true method is by the use of autogenous vaccines. Vaccines are of the greatest value in chronic or subacute, and especially relapsing staphylococcus affections of the skin, where there is a lack of production of antibodies, due to the patient's capacity for pro-

ducing antibodies being worn out. Many times brilliant results, not infrequently failures, are met with in the treatment by vaccines of relapsing furuncles, sycosis, and pustular dermatitis. His results vary in the treatment of eczema. It is the pustular, weeping or vesicular type that is most favorably affected, but there were many negative results. About 50 cases of rosacea were treated, 25 of whom were private patients, who could be better followed than dispensary patients. In cases where the rosacea is complicated with acne pustules, the albus vaccine not only causes the acne to disappear, but diminishes the rosacea, and there is improvement also in the cases of pure rosacea. He admits, however, that hygienic and constitutional measures are also necessary. With regard to ordinary acne, acne vulgaris, Gilchrist still considers the vaccine treatment of great value. He has found that a stock bacillus acnes vaccine made in the hospital laboratory is as effective as an autogenous one. The following may be cited as a very saving clause in his argument as to vaccines in acne: "Patients with severe acne have still to be treated with a great deal of painstaking care, and one cannot rely on vaccine therapy alone. It is necessary to give careful attention to diet, to the regulation of the normal functions, to fresh air and exercises, to the expression of all comedones, since vaccines have no effect on comedones at all, and in many cases to the application of mild x-rays, and finally to the use of suitable lotions or ointments." He refers to the indiscriminate and unscientific use of acne vaccines by hundreds of physicians throughout the United States with very unfavorable results. He now recommends an initial dose of 10 to 20 millions, then wait for the negative phase that occurs from the third to the eighth day and is shown by the appearance of new lesions or the flaring-up of old ones, and after these have subsided, give another injection, and so on for three or four injections, when a period of rest is to be taken.

Gilchrist notes some beneficial results in blastomycetic dermatitis by treatment with a filtrate from a three months' old culture of the blastomycetes.

It was thought, since tuberculin ointment had been used with some success in treating lupus vulgaris, that ointments made with the staphylococci, streptococci, trichophyton tonsurans, etc., might in the same way be found to be valuable. The organisms were therefore mixed with a cold cream base, in the strength of ten per cent., and this was applied to various cutaneous affections, especially those due to one or the other of these organisms, or where they were secondary invaders. The results were not favorable in papular, pustular and weeping eczemas of the legs, arms and face, but there was great benefit in two cases of eczema and pruritus about the anus. Also benefit was produced in a few cases of sycosis vulgaris. An ointment of the bacillus acnes produced some interesting improvements, but could not be regarded as successful on the whole.

In summing up, Gilchrist points out the necessity of having an intimate knowledge of bacteriology and immunology in attempting to treat skin diseases by means of vaccines, giving the preference to autogenous vaccines, and warning against the use of the commercial mixed vaccines. He admits that this treatment by vaccines has not been so successful as it promised, but yet regards it as a valuable aid, especially in acne and the staphylococcic forms, and perhaps occasionally in eczema. He thinks that the use of ointments made up of organisms cultivated from the skin offers a hopeful chance for investigation.

RESEARCH STUDIES IN PSORIASIS.[2]

Schamberg, with his assistants, Kolmer, Ringer and Raiziss, has conducted an elaborate and important series of investigations on the subject of psoriasis in the dermatological research laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine. In the investigations no attempt has been made to prove any theory of the causation of psoriasis, a subject about which at the present time, as in that of Auspitz, practically nothing is known. The researches were conducted on two lines, one bacteriological and pathological, the other physiological-chemical; and the work was carried out with the intention of recording the findings, whether of a positive or negative character. A summary of their conclusions from their bacteriological and pathological investigations is as follows:

1. Nine of 48 cases of psoriasis, or 18.7%, gave positive Wassermann reactions, using an alcoholic extract of luetin liver as antigen. With antigens of cholesterinized alcoholic extracts of human and beef heart over 28% or 22 cases reacted positively. From a clinical study of the patients whose serums were studied, the positive tests cannot all be attributable to syphilis, although this might be true of a few of them; on the other hand some significance must be attached to them, which future research alone can reveal.

2. Using for antigens aqueous and alcoholic extracts of psoriasis scales and of a larger number of cultures of organisms isolated from lesions, complement fixation was not found to occur with 10 sera from active cases of psoriasis. These results would indicate that either the true antigen was not present in the extracts of scales and culture used, or that the psoriasis antibody, if it exists, was not present in the sera in sufficient amount to inactivate complement with the extracts used in this study.

3. Sixteen different organisms were isolated from 57 cultures from 24 cases of psoriasis. No organism was found that could be regarded as bearing an etiological relationship to the disease.

4. An unidentified diplococcus was found in 5 psoriatic lesions and in 1 blood culture, and is deserving of further study.

5. The use of anaerobic methods and special culture media, composed of the scales and secretions of psoriasis, did not show the presence of any special parasite.

6. Numerous growths of scales in moist chambers showed the presence of diplococci, but no unusual organism or fungus.

7. Investigation with the ultramicroscope discovered the presence of a motile bacillary body in 17 out of 19 cases of psoriasis. In 18 other dermatoses these were found in 3 instances. These bodies are being further studied.

8. Cultures and microscopical examination of fluid secured by blister over psoriasis lesions yielded negative results.

9. Vaccine treatment carried out with vaccines made from a large number of different species of organisms found in psoriasis lesions, yielded indifferent and inconclusive results.

10. Inoculation experiments on monkeys, including the implantation of buttons of psoriasis skin, scales, serum and defibrinated blood, were negative in one to six months after inoculation.

With regard to metabolism in psoriasis, a great many contributions on this subject have appeared during the last twenty years. These observations have been based chiefly on clinical examinations, with sometimes an analysis of the urine. The writers' research on the metabolism of psoriasis was directed primarily to a study of the protein metabolism. In the experiment all of the patients were kept in private rooms at the Polyclinic Hospital, which were on the same floor as the laboratory, so that the excreta could be transferred to the examining room as quickly as possible. The results of a careful study of the protein metabolism of eight psoriasis patients are reported with much detail. The summary and conclusions of their investigations show:

1. That on a given protein diet a psoriatic subject eliminates less nitrogen in the urine than does a normal individual on a corresponding diet. The urinary nitrogen in some of the patients reached a level lower than has even been recorded.

2. Patients suffering from psoriasis exhibit a remarkable retention of nitrogen. This retention appears to be proportional, in a general way, to the extent and severity of the eruption present.

3. The nitrogen is retained to a greater degree than has been observed in connection with any other condition, and is, furthermore, retained with great ease even on a diet low in nitrogen and insufficient in caloric value, and one on which a normal individual would fail to maintain equilibrium.

4. Experiments with urea feeding show conclusively that the nitrogen retention cannot be attributed to any disturbance in the eliminative capacity of the kidneys.

5. Patients with extensive psoriasis may lose very large amounts of nitrogen in the exfoliated scales, which consist of almost pure protein.

6. The retention of nitrogen in most of the cases was greater than could be accounted for by the protein lost in the scales, and it may persist even after scaling has ceased, and the eruption has virtually disappeared.

7. A low nitrogen diet has a most favorable influence upon the eruption of psoriasis, particularly when the latter is extensive. Making all reservation suggested by scientific caution, there can be no doubt that severe cases of psoriasis improve under such a diet, almost to the point of disappearance of the eruption.

8. Conversely, a high nitrogen diet exhibits an unfavorable influence on psoriasis, commonly causing an extension of the eruption.

9. Whether a high nitrogen diet can stimulate an outbreak of psoriasis in a psoriatic subject, who is at the time free of the eruption, has not yet been determined.

10. The great proliferation and exfoliation of cells by the skin in psoriasis demand a large supply of protein, which can only be procured from the lymph and blood streams. This protein supply may be derived from the ingested food, and a possibility exists that the great demand of the diseased skin for protein may also be satisfied by the protein reserve in muscle tisssue, which thus may become depleted and later require restoration.

11. A protracted, low protein diet may diminish the proliferative activity of the skin by diminishing the supply of the principal building material, namely, protein. On the other hand, a high protein diet may stimulate the proliferative activity of the cells by furnishing an abundant supply of the necessary protein.

12. The writers are unwilling, at the present stage of their studies, to venture an hypothesis as to the primary cause of psoriasis.

ARTIFICIAL ERUPTIONS FROM CRUDE COAL TAR.

Brocq,[3] who was one of the first to advocate the use of pure coal tar in the treatment of oozing and highly inflammatory eczemas, calls attention to certain cases of artificial dermatitis produced by this agent. He still maintains the view that of all preparations actually known that are of value in drying up rapidly a vesicular eczema, either of the true or of the seborrhoic type, crude coal tar is the one best tolerated by a large majority of patients. Exceptions, nevertheless, occur, in which it is necessary to suspend the treatment immediately, on the appearance of certain indications that the individual skin is intolerant of this application. Hallopeau and François Dainville have reported a case of acute bullous dermatitis following the frequent applications of methylene blue and coal tar in a patient suffering from persistent urticaria. Brocq agrees with the reporters that this eruption was due to the applications of coal

tar and not to the methylene blue, as his experience with methylene blue since 1897 has been that inflammatory reactions with abundant exudation sometimes occur when it is employed in eczematous subjects, but never a bullous eruption.

With coal tar, on the contrary, he has found that in certain comparatively rare instances, the application of coal tar may provoke the appearance of large bullae, which are more or less characteristic of this procedure. This occurs especially in eczematous subjects, on the upper and lower limbs, and especially on the lower part of the legs. In a case cited, that of a man of 37 who had entered the hospital for a generalized eczema, coal tar applications had been made to the lower part of the legs, the places where there was the most exudation. Soon afterward enormous bullae, filled with yellowish serum, appeared on the regions that had been treated with the coal tar. Later on a modified coal tar paste produced an eruption of small bullae. In other cases, an oxide of zinc paste containing varying proportions of coal tar, produced an intense redness of the skin, after several days of application. But the characteristic sign of this dermatitis is the production of vesicles and bullae. Often the bullae are of very large size like those of pemphigus, with very resistant walls, the raw surfaces left after the breaking of these lesions persisting often for a very long time.

Brocq thought at first that these accidents were due to a bad quality of coal tar, but careful investigation showed that it must be explained by individual intolerance. Consequently Brocq counsels caution in the use of crude coal tar, using it in pure form or incorporated in pastes only on very small surfaces at the beginning, and using it generally only when one is sure that it will not produce any poisonous effect. Also it is important not to repeat the applications very often, and to suspend its use when one sees the skin assuming a certain red tint. He considers it regrettable that these relatively rare occurrences should throw discredit on an application that is most useful in rebellious pruritus and in exudative eczemas.

PEMPHIGUS TREATED BY QUININE INJECTIONS.

Leszczynski[4] in Lukasiewicz's clinic in Lemburg has attempted the treatment of pemphigus with quinine intravenously. Quinine was recommended by Mosler in 1890 in cases of pemphigus, and for ten years quinine has been employed in most cases of pemphigus at the Lemburg clinic, with no doubt as to its favorable action. The good results attained in many cases of skin disease by blood-letting followed by the injection of salt solution and the action of intravenous injections of salvarsan in syphilis, stimulated Leszczynski to try intravenous injections of quinine in pemphigus. Three cases of pemphigus, in all of which the mucous membranes were prominently affected, were treated by this method, beginning with small doses of quinine, and increasing up to a grain, given every other day. All the patients asserted that as early as the day after the injections, they experienced less smarting and pain from the oral lesions. The skin proved more refractory to the injections than the mucous membranes, but began to improve after several injections. The writer declares that there can be no doubt as to the very rapid amelioration of the oral and mucous membranes lesions under this treatment, and a less rapid, although marked, improvement of the skin lesions. With regard to permanent improvement, new lesions appeared during the treatment in all three cases. The first patient, to be sure, showed few and slight recurrences, and was discharged well. No return had yet occurred. The second, a more severe case, continually exhibited new lesions during the treatment, although he was free at the time of writing. In the third case, the mucous membrane of the mouth improved more quickly than in either of the others, and remained good during the whole time of observation. On the mucous membrane of the vulva and on the skin, new efflorescences appeared during the treament, and the patient was not free from the trouble. The writer truly says that it may be a question whether the benefit in these cases comes from the quinine or from the salt solution in which it is given. On the one hand, we know that quinine internally has given good results in pemphigus, and on the other hand Bruck and Simon have shown the good effects of drenching with salt solution. On both grounds, therefore, the use of the quinine injections seems to be justified. It would be of interest to know if other bullous and exfoliative dermatoses may be benefited by quinine injections. In a case of exudative erythema multiforme, with bullae and exfoliative changes of the mucous membrane of the mouth, healing of the mucous membranes was attained after four injections of quinine, and no new appearances were observed during the succeeding two weeks. The writer concludes, on the strength of these three cases, that injections of quinine salt solutions have a favorable influence on the course of pemphigus, and hasten epithelial regeneration. They also alleviate subjective symptoms and improve the general condition.

ALOPECIA ATROPHICANS.

Dreuw[5] of Berlin states that alopecia atrophicans is very little known as compared with alopecia areata. It was first described by Brocq in 1885, and consists of bald patches of varying size, seldom perfectly round, but with three and four angles, partly isolated and partly confluent, with inflammatory appearances or subjective symptoms, which lead in the course of years to an atrophy of epidermis and corium and result in permanent baldness. It has been named by Brocq pseudo-pelade. Inasmuch as

this affection occurs in epidemics, Dreuw considers that it ought to be brought more prominently before the general medical profession than has been the case.

In 1910, 200 cases were observed in Berlin schoolboys. The patches corresponded to the description of Brocq given above. The children affected were from 5-14 years of age, all of them boys. The affection began with a small bald spot of rounded or oval shape, with in some cases a few scales appearing. In no case was there a total alopecia. Remains of hairs were sometimes to be found in the centre of the patches. Microscopically no fungus or parasite could be detected. He names this episode alopecia parvimaculata on account of the arrangement in small spots, and regards it as the beginning stage of alopecia atrophicans, inasmuch as the symptoms of the latter affection have been observed in eight of the school children. The fact that no infectious agent could be discovered is not, the writer asserts, sufficient evidence that the affection is not contagious, in view of the epidemic character. On the ground of an epidemic described in Lüdingshausen he considers that there is a form of alopecia parvimaculata non atrophicans which is related to some forms of alopecia areata.

MEDICAL COSMETICS OF THE SKIN.

Kromayer,[6] inventor of the quartz-lamp, takes up first the anomalies of cornification and warns against the free and long-continued use of ointments, paints and powders for cosmetic purposes, which protect the skin from the irritating effects of air, light, and varying grades of temperature, but cause a thinning and diminished nutrition of the integument and subcutaneous fat, which predispose to early senile changes. Such skins are also more susceptible to diseased conditions, and to hyperkeratoses, which in turn lead to eczematous inflammatory conditions. These rough skins, predisposed to eczemas, are wanting in water and in fat, and it is the object of therapeutics to supply the place of these substances. Fats should be applied immediately after soap washings, and before the skin is thoroughly dry, wiping off the excess with absorbent cotton or a bit of linen. Kromayer considers that the pure fats, as lanolin, vaseline, oils, etc., make the skin unpleasantly greasy, and recommends solution of fats in fluid and gelatinous substances, solutions of glycerine and castor oil in alcohol, glycerine in tragacanth or solution of fats in ether. Fatty emulsions, cold creams, etc., are perhaps most valuable of all, as equal parts of lanolin, vaseline and water, or with the addition of glycerine.

For keratoses, radium and the Roentgen rays are recommended, especially on account of their action on the connective tissue, which the writer asserts is also "hardened" in conjunction with the epidermis. These agents should not be used in too feeble doses; it is desirable to push them to the point of a well-marked erythema.

With regard to vascular anomalies, various pastes of sulphur, salicylic acid and resorcin are commonly used in the treatment of rosacea, when there is present also an affection of the follicles. Lassar's schälpaste, and the quartz-lamp are also recommended. When there is hypertrophy of connective tissue, with enlargement of the nose, the Roentgen rays and the quartz-lamp are of great value. The older methods, of scarification and electrolysis, are much inferior. Touching the vessels with the sharp point of the actual cautery is recommended, however, in rosacea, as well as in the case of punctate vascular naevi and linear telangiectases. In the case of flat naevi, radium is preferred to carbon dioxide snow, by Kromayer, or radium in combination with Roentgen rays.

With regard to acne vulgaris, the writer takes the view that the ordinary form at the time of puberty is due to constipation, which causes the absorption of abnormal poisonous substances from the intestinal tract. For local treatment in acne the Roentgen rays are particularly recommended, especially in rotation with stimulating applications and peeling.

The anomalies of pigment are to be treated in various ways, according to the character of the individual lesion. The interesting assertion is made that an intense application of the rays from the quartz-lamp so that bullae are produced, is followed by a permanent and not temporary removal of pigment. He has also used the lamp to lighten the pigment at the borders of patches of vitiligo.

In the treatment of alopecia areata, he considers that the light as applied by the quartz-lamp is far superior to all other methods. He has not, however, been able to make use of this method with advantage in other forms of alopecia.

With regard to hypertrichosis, he speaks of the Roentgen ray treatment for the removal of this condition as useless and to be abandoned. With regard to electrolysis, he displays an acquaintance with the finer points of this treatment which is much inferior to that possessed by the skilled operators in America, where this procedure was devised and developed. Even with an unprotected needle, there should be no danger of scarring in experienced hands. He reports a far larger percentage of recurrences than is necessary, and his method of technic is surely inferior to that adopted by the best American dermatologists.

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Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, April 8, 1914, at 8.30 P. M.

The President, Dr. William D. Robinson, in the chair.

THE SUBJECTIVE AND OBJECTIVE SYMPTOMS OF FAVORABLE AND UNFAVORABLE REACTIONS TO TUBERCULIN.

Dr. Myer Solis-Cohen: Many of the phenomena produced by tuberculin are often unrecognized because they are slight or have not been recorded in the literature. Valuable information as to suitability or unsuitability of dosage is neglected with the result that the appropriate dose is frequently increased instead of being held and the excessive dose often still further augmented, until the well-known book symptoms of a severe unfavorable reaction have been produced. Unless the physician questions his patient closely without, of course, suggesting the nature of the reply, and unless the patient observes himself carefully and reports his symptoms accurately, many of the less well-known symptoms of a reaction will be missed. If the observant physician will note every symptom occurring on the day of and the day after the administration of tuberculin that was not present before the dose was given, he may discover many symptoms of a reaction of which no mention has as yet been made. In order to direct attention to the disregarded and unfamiliar symptoms I have tabulated all the subjective and objective symptoms that have followed the administration of tuberculin in 56 of my patients of whom I had sufficient notes and on whose records I could lay my hands. To this list I have added 45 symptoms of a reaction that have been described by other writers but not recorded by me. I distinguish between favorable and unfavorable reactions to tuberculin and have grouped the symptoms under these two heads. In 56 patients who reacted to tuberculin I observed a total of 91 distinct symptoms, many of which I have not seen previously recorded. It should be borne in mind that this is an analysis not of patients taking tuberculin but only of those who presented symptoms of a reaction to tuberculin. Symptoms grouped under the head of a favorable reaction are detailed under sub-headings of: (1) general or systemic symptoms; (2) changes in the temperature; (3) lung symptoms; those under the head of unfavorable reaction are detailed under (1) general or systemic symptoms; (2) gastro-intestinal symptoms; (3) alteration in the temperature; (4) lung symptoms; (5) pains; (6) eye symptoms; (7) vasomotor phenomena. Symptoms reported by other observers I have recorded under: (1) General or systemic symptoms; (2) local or organ symptoms; (3) skin reaction at site of injection.

REPORT OF A CASE OF OSTEITIS DEFORMANS.

Dr. Eleanor C. Jones: This rare disease of the bones was first described by Sir James Paget in 1876, and is commonly known by his name. The latest statistics show about 175 cases on record of which only about fifty are American cases.

The case reported follows closely the essential features of the cases reported by Paget. The disease in this woman began at the age of 53 years. She has lost about four inches in height, her height now being 4 ft., 11 ins., because of the bowing of the legs and curvature of the spine. Her head is large and square looking; the thorax small and emaciated; clavicles thickened. The spine has the appearance of sinking into the pelvis. The pelvis is wider than normal, and all the long bones are bowed. The arteries are somewhat atheromatous, and the second aortic sound is accentuated and there is a loud systolic murmur present. The urine showed a cloud of albumen. The examination of her blood for Wassermann reaction was negative. The summary of the bone changes found by radiographical examination were those of new bone formation, porosity, a softening arthritis and bone absorption. No suggestions could be made as to the cause of the disease in this patient.

THE CORRELATION OF APPENDICITIS AND OTHER ABDOMINAL AFFECTIONS.

Dr. Levi J. Hammond: Aided by abundant clinical evidence we must conclude that the frequency of the co-existence of abdominal inflammations with appendicitis is more than a coincidence. A critical analysis of the findings in 920 operations at the Methodist Episcopal Hospital, Philadelphia, would seem to indicate that the existence of the appendix establishes an important anatomic and physiologic relation to the remainder of the digestive system. It must, therefore, be considered as a specialized and functioning organ blending with the remainder of the digestive tract. The principal characteristic of the appendix is lymphoid tissue. One property of lymphoid tissue is to produce leucocytes, and it is only after the sclerosed appendix has impaired or destroyed the function of the lymphoid that acute appendicitis develops. As to the demonstrable anatomic relation of the appendix with other abdominal organs I would especially refer to that of the mesoappendix and the ovary by a peritoneal fold extending directly from the former to the latter. This relationship explains the frequent association of the appendix and adnexal disease. Of all the organs the liver is the one which appendicitis causes to suffer most. Epigastric symptoms must be regarded as reflex phenomena caused in the domain of the vagus nerve by irritation in the nerve terminals of the appendix. Gastric dyspepsia in chronic or recurring appendicitis is thus explained, dependent as it is upon trouble within the secretory, motor or vasomotor function of the viscera. Neuralgic or neuritic pains are in like manner referred to the hip, the thigh, or to the thorax as in pneumonia and acute tuberculosis. Chronic duodenal and gastric ulcers would seem to be dependent upon septic thrombi of appendiceal origin. Biliary lithiasis, chronic cholecystitis and hepatitis furnish forceful evidence in support of their origin in part, at least in primary infection of the appendix. Diagnosis must be based upon existence of a painful zone. This can always be elicited at the point where the appendix is located if palpation combined with rectal and vaginal examination be thorough.

Recurrent attacks of supposed typhoid fever have proved to be chronic appendicitis and prompt cure followed removal of the appendix. When differenti-

ation of the various abdominal affections is doubtful and the morbid symptoms justify operation, this should be done through an incision allowing intervention with the viscera and the appendix, with the ovary and the appendix, or with the kidney and the appendix. Faisans says, appendicitis is so frequent that one must always think of it and seek for it systematically by aid of interrogation and a complementary examination as one seeks for syphilis and alcoholism.

OUR EXPERIENCE WITH CROTALIN AT THE OAKBOURNE EPILEPTIC COLONY.

DR. N. S. YAWGER: For the purpose of this study a fair group of individuals having idiopathic epilepsy were selected for three months treatment. All but one patient were given an intramuscular injection of crotalin once a week for three months. We began with 1/200 of a grain gradually increasing it to the strength mentioned in the details of the cases, 1/25 of a grain being the maximum dosage. Because of the psychic effect the purpose of the injections was kept as much as possible from the knowledge of the patients. Briefly stated, our exerience was that two patients were uninfluenced; two were worse during the treatment; one, early in the course developed such intolerant toxic symptoms that further experimentation was unjustified; and the last patient died two and a half months after treatment. While we did not feel that death resulted from the use of crotalin, the patient's disease certainly was not benefited by the treatment.

Book Reviews.

The Practice of Pediatrics. By CHARLES GILMORE KERLEY, M.D., professor of diseases of children, New York Polyclinic Medical School and Hospital. Octavo, pp. 878, 139 illustrations. Philadelphia and London: W. B. Saunders Company. 1914.

This new book by Dr. Kerley contains an immense amount of valuable material. It is, on the other hand, not very well arranged and shows evidence of having been hastily written. It is written from the standpoint of the practitioner and will, therefore, be of great value to practitioners. The vast clinical experience of its author is manifest on every page. It is especially strong in regard to the treatment of diseases, the part in which most books are woefully deficient. No one can read it without picking up many valuable points in treatment, even if one does not entirely agree with the author in all his recommendations. The book should be very useful to physicians, whether they are in general practice or specialize in the diseases of children. It should have a wide sale.

A Treatise on Diseases of the Skin. For the Use of Advanced Students and Practitioners. By HENRY W. STELWAGON, M.D., Ph.D., professor of dermatology, Jefferson Medical College, Philadelphia. Seventh edition, thoroughly revised. Octavo of 1250 pages with 334 text illustrations and 33 full-page colored and half-tone plates. Philadelphia and London: W. B. Saunders Company. 1913.

The last edition of this work appeared in 1910. The present, the seventh edition, although following closely on its predecessor, shows the advances made by dermatology, in the descriptions of more or less recently acknowledged independent disorders that have been added by the author. Among these may be mentioned prurigo nodularis, granuloma pyogenicum, benign sarcoid, and keratosis blenorrhagica. About forty new illustrations have been added, much old matter has been eliminated, and much new matter and many changes in the text have been inserted. In short, the book has been completely reset, but preserves its place as the best text-book from the point of view of students and practitioners in the English language.

Biology. General and Medical. By JOSEPH MCFARLAND, M.D. Second edition. Thoroughly revised. pp. 457. W. B. Saunders Company. 1913.

The first edition of this book was favorably reviewed in these columns and we see no reason to change the opinion then expressed. The author has modified the text somewhat in response to the friendly criticisms of his readers and again presents a book clearly written and containing a vast number of facts with which persons of ordinary education should be acquainted. The value of such a book to students of medicine is particularly evident.

Modern Anesthetics. By J. FREDERICK W. SILK, M.D. (Lond.). New York: Longmans, Green and Company. 1914.

Dr. Silk is one of the leading London anesthetists. His book on anesthesia adds another to the group of excellent English handbooks on this subject by Gardner, Mortimer and Alderson, all of which have been recently reviewed in the JOURNAL (Vol. clxii, p. 576; Vol. clxvi, p. 258, and 423). Like his colleagues, Silk advocates the habitual use of the corneal reflex, whose employment is discouraged by American anesthetists. The book is well illustrated with 36 figures in the text, and is a valuable addition to the manual literature on anesthesia.

Annual Report of the Surgeon-General of the Public Health Service of the United States. Washington: Government Printing Office. 1914.

This report records the activities of the Service for the fiscal year 1913. It is divided into the usual headings of scientific research, maritime and domestic (interstate), quarantine, and marine hospitals and relief. It records an interesting variety of scientific and administrative data. Among the urgent needs of the service are more officers, an additional building for the hygienic laboratory, funds for printing publications, and an appropriation to defray the expense of collecting morbidity reports.

Surgical Diseases of Children. A Modern Treatise on Pediatric Surgery. By SAMUEL W. KELLY, M.D., LL.D. Illustrated. Second edition; revised and enlarged. New York: E. B. Treat and Company. 1914.

The first edition of this text-book was published in 1909. The appearance of this second edition within five years is evidence that the volume has found a place of value in medical literature. Considerable new matter has been added, notably with regard to arthroplasty, club-foot, scoliosis, tonsillectomy and transfusion, but sufficient condensations have been made so that there is an increase of only 25 pages in the total. A series of 62 notes have been transferred from the text to a convenient appendix. There are 295 illustrations. With the exception of Kirmisson's admirable "Handbook of the Surgery of Children," this seems the most satisfactory and available work on an important and often neglected special field of surgery.

An Introduction to the History of Medicine. With Medical Chronology, Bibliographic Data, and Test Questions. By FIELDING H. GARRISON, A.B., M.D. Illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

The purpose of this volume is partly to present a consecutive story of the development of medical sience, partly to record a large number of discrete biographic and historic data in a form readily available for reference. Both aims are very happily fulfilled, and at the same time, the encyclopaedic character of the book does not detract from its literary excellence. There are successive chapters on primitive, Egyptian, Oriental, Greek, Byzantine, and Mahometan medicine; on medicine in the middle ages and renaissance; and on the medicine of the four great succeeding centuries. The text is well illustrated, chiefly with portraits, and there are complete indices of personal names and subjects. The work is a valuable contribution to the literature of medical history, of which it places a comprehensive and scholarly survey within convenient access both for students and for occasional readers.

Spätpsychosen Katatonic Art. Von DR. MED. MAURYCY URSTEIN. Warsaw, Berlin und Wiener: Urban und Schwarzenburg. 1913.

This monograph on late catatonia, which with the author's previous publications is well worth the consideration of the psychiatrist, shows how insufficient are our present methods of diagnosis and classification. The manic depressive in his cases, may and does become in later years a catatonic, exhibiting signs and symptoms which if present in the patient's early life we should not hesitate to ascribe to dementia precox. The presenium ushers in many psychoses, which no matter how they start, whether by manic depressive symptoms, by paranoid ideas or catatonic manifestations end in a large number of cases with the symptoms of catatonia. Urstein's exceptional opportunities in having access to the fine records of Schweizerhof has made possible this demonstration of the insufficiency of the Kraepelinian scheme, but when Urstein goes further and makes catatonia a disease with an underlying internal splitting of the personality as the cause, he leads us into the same difficulties as Kraepelin has, for an inner splitting must be the basis of all functional psychoses, no matter what their character. There must be a destruction of inhibition here, a stimulation there, a falling part somewhere else, and an internal splitting is no more a characteristic of any single group of diseases than inflammation is peculiar to a skin infection or a meningitis. It is a general process, the recognition of which will not help us in the diagnosis of any one condition. Further, we find that his "catatonia" embraces almost the whole of dementia precox, the largest part of manic depressive insanity, the major portion of the psychoses occurring in the presenium and senium, and, therefore, the concept is not of great advantage to us since it does not enable us more intelligently to offer a prognosis or apply treatment. While his cases also are those in which the psychosis has come on after forty years, probably a more searching history into the antecedents of his patients would have revealed the fact that in many cases there was an initial attack in adolescence or in early life. This attack may have been a slight one and have passed without further notice than to call it "nervous prostration," a term of which psychiatrists ought to be especially suspicious.

Nevertheless Urstein has done psychiatry service in the publication of his cases of Spätkatatonie as well as in that of his two other monographs. The three books are earnestly recommended to every psychiatrist.

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AUTO-SERUM INJECTIONS IN CHRONIC PSORIASIS AND OTHER OBSTINATE SKIN DISEASES.

THE latest thing in dermatology is the use of auto-serum in the treatment of certain inveterate affections, as practiced during the past year by Linser, Ulmann and other German authorities. In this procedure a suitable quantity of blood is drawn and centrifuged, and the serum thus obtained is injected intravenously. The method appears to be practically harmless, and its technic is simple. It has only very recently been introduced in America, and the credit for its first employment here is due Gottheil of New York, who in the *Medical Record* for April 4 published reports of twelve cases,—six of generalized psoriasis, three of generalized eczema, two of pemphigus, and one of leprosy,—treated in his service at the City Hospital, Blackwell's Island. The psoriasis and eczema cases received autogennous serum; the pemphigus and leprosy ones, that of relatives and that of a case of dermatolysis when it was available. In the first two diseases the injections were given once a week,—three or four in number, of from 20 to 30 c.c. each, making about 100 c.c. in all,—before the local treatment, of very mild character, was begun. In the pemphigus and leprosy cases more injections were employed. In the cases of psoriasis the results were wholly admirable, and in those of eczema less decisive, though marked improvement was observed, while in those of pemphigus, although reports of wonderful success in this affection have been published in Germany, there were practically no results at all. In the case of leprosy the benefit from the treatment was unmistakable and quite rapid, though in this disease there is no reason to hope that it will do more than ameliorate the symptoms and improve the general condition.

A second communication on the subject was presented by Gottheil at the May meeting of the Medical Association of the Greater City of New York. Since the expiration of his term of service at the City Hospital, in January, the cases in which he has employed the treatment have been mostly in private practice, and the exigencies of office work have naturally rendered it impossible to administer it to any very large number of patients. The process is somewhat lengthy; the services of a nurse and an assistant, while not absolutely necessary, are desirable for the instrument sterilization, the centrifuging, etc., and the various factors of personal convenience, expense, and individual possibilities and idiosynerasies have to be taken into consideration. As in the first series, the most noteworthy were the psoriases, of which there were five. One of these patients was a physician with the affection chiefly on the palms of the hands, and complicated by a severe radiodermatitis, the result of x-ray treatment, who withdrew from observation before the course of treatment was concluded. Excluding this case and judging from his experience in the other ten cases of the disease now treated, he expresses the positive conviction that in psoriasis the auto-serum method has a peculiar influence for good, which enables one to clear off the skin in one-tenth the usual time, with very weak and innocuous local medication, and without any internal treatment whatever. All the cases were old, extensive and recurrent instances of the disease. In every case the treatment was well borne and caused no inconvenience, and in all, the following effects were observed: Cessation of the appearance of new lesions and diminution in the elevation, redness and scaling of the old ones; very rapid disappearance of the disease,—in from three to seven days after the course of injections, under the mildest kind of local treatment (usually with 2½% chrysarobin petrolatum); and all this without any of the extremely troublesome general dermatitis ordinarily accompanying the chrysarobin full strength medication. Such a gratifying picture he contrasts with the four to

six weeks' treatment with ointments ranging up to 40% of chrysarobin, the daily arsenical injections, up to the very point of toleration, and the daily scrubbings with detergent soaps, etc., which constituted his former plan of procedure. The evidence therefore seems to him conclusive that in psoriasis the blood withdrawal and subsequent serum injection, one or both, have a very pronounced influence in modifying and ameliorating the disease and rendering the skin less susceptible to the irritating effects of local medication, and at the same time more responsive to its remedial action. Whether the treatment has any influence in preventing or delaying relapses, or on the general course of the disease, must be left to the future to disclose.

A few cases, including a chronic urticaria, a generalized lichen planus, a bad pustular acne with large abscesses, etc., are still under treatment, but Gottheil states that he is not prepared to report upon them as yet, except to say that in them the prospect looks encouraging. These cases are of such long duration, so recalcitrant to ordinary treatment, and so prone to show exacerbations and remissions, that he feels that great caution must be exercised in reporting results. He does, however, cite one remarkable case in this second series which is deserving of special mention. The patient had had prolonged x-ray treatment for some abdominal disorder six years ago, and this had resulted in the formation on the skin of the abdomen of an atrophic area, covered with telangiectases. Last autumn it began to show distinct signs of active inflammation, and at one time there seemed danger of a fatal termination. When Dr. Gottheil first saw him the entire area was necrotic, presenting the complete picture of a chronic gangrenous radiodermatitis. Local treatment was almost impossible on account of the exquisite tenderness, and morphine had to be constantly resorted to on account of the intolerable pain present. As the result of one injection of 70 c.c., at the end of a week there was noted a wonderful improvement in the lesion and in the general condition of the patient, who for the first time had been able to sleep without the aid of narcotics. During the month following he was given four injections of nearly 100 c.c. each, there was a rapid and steady betterment, and he gained fifteen pounds, or more, in weight. The ulceration was now clean,—all necrotic tissue having been removed,—and two-thirds healed; and, as the sensitiveness had disappeared, vigorous stimulant local treatment was instituted. Since the results under the five injections had been so satisfactory, it was purposed giving him three more, by which time it was estimated that the ulceration would be entirely healed. After the sixth, however he had a chill, followed by fever and sweating, and as similar phenomena of even greater severity resulted from a seventh injection, the serum treatment was discontinued. The constitutional reaction produced was thought to be probably of the nature of "serum sickness," due to the sensitizing of the organism by the previous injections. At the present time the ulceration is but one-quarter its original size and is slowly healing under local treatment alone. On the whole, the results observed in this case are certainly noteworthy; though, as therapeutic work of this kind is as yet experimental and without data, it is possible that the injections were too large or too near together.

Among those who have taken up the autoserum treatment are Fordyce, MacKee and Howard Fox. In his experience with it Fox has had eighteen cases: fifteen of psoriasis, two of eczema, and one of herpetiform dermatitis. In the eczema cases the results have been unsatisfactory, but in the herpetiform dermatitis somewhat more encouraging, while in the cases of psoriasis they have proved exceedingly gratifying. He has given rather smaller doses of serum than Gottheil, and finds local treatment after the injections to be essential. In his psoriasis cases he employed chrysarobin, and in some instances also covered the lesions with rubber cloth, but the final results have been such as could by no means have been obtained from local treatment alone.

MacKee has employed the treatment in fourteen cases. Eleven of these were of inveterate psoriasis, and he noted in them the same admirable results observed by Gottheil and Fox. Like the latter, he uses the smaller doses of serum, and he usually gives about six injections, at a week's interval, before resorting to local treatment. His local medication is even milder than that of Gottheil. In two cases of herpetiform dermatitis which had resisted all other treatment for twelve years, the skin entirely cleared up in six or eight weeks. Whether the result will be permanent remains to be seen. He has observed no serum sickness, and speaks very encouragingly of this new treatment, which he has found easy to carry out and apparently free from danger.

ANTI-VACCINATION SENTIMENT IN GERMANY.

IN commenting editorially, in the issue of the JOURNAL for April 23, on the Bagshaw anti-vaccination bill, we referred to the minimum frequency of smallpox in Germany, where compulsory universal vaccination is enforced. It appears, most regrettably, that there is an anti-vaccination faction also in that country, as was evidenced by a discussion in the Reichstag on May 23.

"On a motion to appoint a commission composed equally of friends and opponents of vaccination for the purpose of studying the whole question, party lines were completely obliterated and the motion failed only by a tie vote. It was brought forward in answer to numerous petitions for a change in the present law, which has been in force for 40 years.

"The anti-vaccinationists claimed that hundreds of cases occur where health is injured by the practice, and it was pointed out that the official statistics show that 32 deaths were thus caused in Prussia in 1912. They further asserted that managers of stations for obtaining lymph from calves have themselves admitted the impossibility of getting a pure lymph in all cases. The German law does not provide for compulsory vaccination, but the police authorities have everywhere construed it as giving them the right to require vaccination, and when it becomes necessary they use compulsion. The representative of the imperial health office, however, said that there were only eight or nine cases yearly where compulsion was necessary.

"A Socialist speaker claimed that some parents have been punished five or six times for refusing to have their children vaccinated, and some of them were sent to prison. Hundreds of thousands of people in Germany, he added, have to act contrary to their conscience in having their children vaccinated, and the example of England, where a conscience clause was adopted some years ago, was held up for imitation by Germany. The case of Italy was also pointed out as worthy of study; it was asserted that vaccination is nowhere practiced so extensively as in that country, yet nowhere is smallpox so frequent. Dr. Kirchner of the imperial health office answered all this by displaying a statistical table showing a steady reduction in smallpox cases since the present law was passed."

At the moment of our happy escape in Massachusetts from the threatened evils of an anti-vaccination propagandum, we cannot but lament this evidence of unenlightened prejudice among the people who present the best example of the beneficence of vaccination against smallpox.

TYPHOID DEATH-RATES.

IN the year 1913 Boston had a typhoid death-rate of 8.4 per 100,000 population, standing twelfth among United States cities. Cambridge, Mass., was fourteenth, with a rate of 9.2, and Lowell, Mass., fifteenth with a rate of 10. During the three-year period 1911 to 13, Cambridge stood second in the United States, with a rate of 5.6, and Boston and Lowell stood eighth, with a rate of 8.6 each.

Philadelphia, which for many years has had a rather poor reputation regarding typhoid, had a rate of 15.7 in 1913, almost double the rate in Boston. In Chicago during the fall of 1913 there was an increase in the number of cases, the reason possibly being an impure public water supply. It is interesting that New York, the largest city in the country, should have had the lowest typhoid rate in its history, namely 7 to 100,000 of the population. This rate compares favorably with that in various European capitals.

Although in a general way it is fair to attribute a lowered typhoid incidence to improved general hygiene, it must nevertheless often happen, as in fact the variations in the death-rate of various cities seem to demonstrate, that fortuitous circumstances beyond the control of the health authorities must arise from time to time, leading to the outbreak of considerable epidemics. This has apparently always been the experience in regard to this so-called preventable disease and simply serves to emphasize the fact that unremitting precautions should be taken to avoid all possible sources of infection, and particularly with relation to public water supply. The foregoing statistics, compiled and published by the *Journal of the American Medical Association*, are a valuable index of the relative extent of typhoid fever in our larger cities, and if the facts as published stimulate a healthy rivalry to minimize the disease, a step in progress toward the complete elimination of this unnecessary infection will be made.

CENTENNIAL OF YALE MEDICAL SCHOOL.

AT the coming Commencement of Yale University, June 15 to 17, the Yale Medical School will celebrate the one hundredth anniversary of the first conferring of degrees. The occasion

will be observed by special exercises to be held June 15, at which addresses will be presented by Professor William H. Howell of Johns Hopkins University and Dr. Walter R. Steiner of Hartford. An excellent musical program will be furnished in connection with the addresses. On Commencement Day a number of honorary degrees will be conferred to commemorate the occasion. A Life of Nathan Smith, one of the founders of the School, will be issued from the Yale University Press at about Commencement time, and a memorial volume of medical papers, prepared under the editorship of Dr. Horst Oertel, and containing contributions from Drs. Graham Lusk, E. R. Baldwin, John Hartwell, C. W. Field, W. W. Herrick, Charles F. Craig, Samuel W. Williston, and Horst Oertel, will appear as a special number of the *Archives of Internal Medicine*. It is hoped that the University will be able to announce at this time the consummation of the plan for affiliation with the New Haven Hospital and gifts to the endowment of the School, to which reference is made in a note in this issue of the JOURNAL.

MEDICAL NOTES.

RECAPTURE OF EARLY THE LEPER.—Report from Seattle, Wash., states that on June 2 John R. Early, the leper, whose escape from quarantine we noted in the issue of the JOURNAL for May 28, was captured in a local hotel and returned to custody.

DECREASING NUMBER OF MEDICAL SCHOOLS.—The recently published eighth annual report of the Carnegie Foundation for the Advancement of Teaching notes with approval that the number of medical schools in the United States has decreased from 162 in 1910 to 115 in 1913.

A WELSH SCHOOL OF PREVENTIVE MEDICINE.—It is announced that the South Wales and Monmouthshire University College at Cardiff has received from an anonymous donor funds for the erection of a school of preventive medicine. We have become so sure of the mode of infection that, being compelled by the lack of bedding, we put patients with other trouble in the beds which had been occupied by typhus patients. We made no further change than clean sheets and pillow covers, and though in several cases the limit of incubation has passed twice over there has not been a single infection."

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The annual meeting of the American Medico-Psychological Association was held in Baltimore from May 25 to 28, inclusive. On May 26 there was a symposium on paresis. On May 27 the annual address was delivered by Dr. Lewellys F. Barker on "The Relation of Internal Medicine to Psychiatry." On May 28 there was a symposium on eugenics, following which the Association defeated by a large majority a proposed resolution favoring the enactment of so-called eugenic marriage laws.

Resolutions recommending the segregation of the feeble-minded, imbeciles, or other mental delinquents, and the establishment of separate institutions for their care, were adopted unanimously.

Dr. S. E. Smith, of Richmond, Ind., was elected president of the association for the coming year. Dr. E. Brush of Baltimore was chosen vice-president, and Dr. Charles G. Wagner of Binghampton, N. Y., was re-elected secretary-treasurer. Councillors elected were: Drs. H. R. Stedman of Boston, H. M. Green of Milledgeville, Ga., W. M. English of Hamilton, Ga., and C. F. Applegarth of Mount Pleasant, Ia.

ANOTHER XIPHOPAGUS.—Another case of xiphopagous twins was reported in a recent issue of *American Medicine*.

"The mother is a white woman, aged 44; by a previous husband she has a son, who is now 23 years of age, and quite normal. On Nov. 28, 1913, she gave birth to two girl children, both a good deal below the normal standard of full-term development; it is not stated what period of utero-gestation had been reached. They are united by a piece of tough fibrous tissue, about four inches thick and twelve inches in circumference, below the sternum, and reaching nearly down to the umbilicus. They have entirely separate thoracic and abdominal organs, except that the two peritoneal cavities are in communication through the band of union. Possibly it is due to this fact that a curious phenomenon occurs in respiration, for one twin inhales as the other exhales, and *vice versa*. One child is very slightly larger than the other in most of its measurments and appears stronger; this larger twin has a pulse-rate of 130, whereas the smaller one's rate is but 120. The blood of the two children also exhibits differences. The larger child has 6,960,000 red corpuscles per c.mm. and 7500 leucocytes; the smaller one has 6,280,000 and 6335 respectively. The children are progressing favorably, and a photograph reproduced with the description shows them being fed, one from each breast."

AMERICAN SOCIETY OF TROPICAL MEDICINE.—The eleventh annual meeting of the American Society of Tropical Medicine, held in Boston on May 30, was attended by 25 members.

Dr. S. P. Beebe of Boston read a paper on "The Effect of Ultra-violet Light on Protoplasm," and Dr. Fritz C. Hyde of Boston read a paper on "The Occurrence of Malaria in New England." The third paper of the closing session was on "Malaria," by Dr. C. C. Bass of New Orleans. At the morning session those who presented papers were Dr. Phillip E. Garrison of Boston, Dr. John T. Moore of Houston, Tex., Dr. Andrew W. Sellards of Baltimore, Dr. Aristides Agramonte of Havana, Cuba, Dr. Richard P. Strong of Boston, Dr. Milton J. Rosenau of Boston, and Dr. W. R. Ohler.

Dr. Strong, professor of tropical medicine in the Harvard Medical School, presided, and his address was on "Recent Discoveries in Relation to Infectious Diseases in South America." Dr. Charles F. Craig, U.S.A., was elected president of the society for the ensuing year, and Surgeon-General William C. Gorgas was chosen delegate to the executive committee of the Congress of American Physicians and Surgeons, with Dr. J. F. Siler, of New York City, as alternate.

The other officers elected are: First vice-president, Dr. Milton J. Rosenau of Boston; second vice-president, Dr. Bailey K. Ashford of San Juan, Porto Rico; secretary, Dr. John M. Swan of Rochester, N. Y.; assistant secretary, Dr. Allen J. Smith of Philadelphia; councillors, Dr. D. T. Darling of Ancon, Panama Canal Zone; Dr. Henry J. Nichols of Washington, D. C., and Dr. Victor G. Heiser of Manila, P. I.

The next meeting of the society will be held in San Francisco, Cal., in 1915.

BOSTON AND NEW ENGLAND.

MALDEN HOSPITAL TRAINING SCHOOL.—The annual graduation exercises of the Malden (Mass.) Hospital Training School were held in that city on Thursday evening, May 28. The principal address was made by Dr. Carroll C. Burpee, of Malden, and diplomas were presented to five graduating nurses.

TRADE SCHOOL FOR CARDIAC CONVALESCENTS.—In July, 1913, a Trade School for Cardiac Convalescents was opened as an experiment at Sharon, Conn. The institution, which has now nearly completed its first year, has been exceedingly successful medically and financially, and will be continued on its present basis.

HOSPITAL BEQUEST.—The will of the late Sarah M. Coats, of Melrose, Mass., who died on May 17, was filed on May 28 for probate at East Cambridge, Mass. It contains a residual bequest to the Melrose Hospital Association.

YALE MEDICAL SCHOOL.—It is announced that the Rockefeller General Education Board has offered to the Yale Medical School $500,000, on condition that it procure complete teaching and medical control of the New Haven Hospital, that the teachers in the main clinical branches be placed on the full-time basis, and that by July 1 the university acquire or set apart the further sum of not less than $600,000.

MASSACHUSETTS COMMISSION FOR THE BLIND.—The recently published seventh annual report of the Massachusetts Commission for the Blind records the work of that body for the year ended Nov. 30, 1913. During this period 415 new cases of blindness have been reported, and 600 blind persons have been helped to get training or employment. Legislation for the prophylaxis of blindness is suggested, and a number of special reports are appended.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending June 2, 1914. Diphtheria, 58, of which 2 were non-residents; scarlatina, 71, of which 10 were non-residents; typhoid fever, 9; measles, 123, of which 3 were non-residents; tuberculosis, 82, of which 6 were non-residents.

The death-rate of the reported deaths for the week was 17.64.

NEW YORK.

A NEW CHARITY.—In a lecture on "Food from the Standpoint of Energy" at the New York Academy of Medicine, on March 19, Dr. Graham Lusk, professor of physiology at Cornell University Medical College, remarked that it would be a matter of great interest if some benevolent person would establish a restaurant which prepared pork and beans on a large scale and served it hot, with bread and with half a large cup of coffee made half with milk. Possibly in this way, he said, 1000 calories in a well-balanced ration, furnishing the requisite energy for an average adult engaged in light

work, could be sold for about ten cents. It is now announced that Mr. George Bancher will establish in the Bowery such a restaurant, where one may purchase for ten cents a meal of this composition, which will furnish exactly 1000 calories; and Prof. Lusk has written him, "I do not know of a better charity than to give an indigent person a meal ticket for such a place. You may have the opportunity of doing a great piece of educational work."

Scarlet Fever at Auburn Prison.—An outbreak of scarlet fever has occurred in the State Prison at Auburn, involving both the men's and women's departments, and more than a thousand inmates have been attacked. The disease is said, however, to be of mild character.

Columbia University.—At Columbia University Dr. Warfield T. Longcope, associate professor of the practice of medicine, has been appointed to the Bard professorship of medicine, made vacant by the resignation of Dr. Theodore C. Janeway. He also succeeds Dr. Janeway as director of the medical department of the Presbyterian Hospital. Among the honorary degrees conferred at the 160th annual commencement of the university, on June 3, was that of Doctor of Science upon Dr. Aristides Agramonte, professor of bacteriology and experimental pathology in the University of Havana, especially distinguished for work on yellow fever.

Mikveh Pools.—A conference, called by Health Commissioner Goldwater, was recently held to consider the subject of "Mikvehs," the cleansing pool baths, whose regular use is required by the Jewish faith. These pools have been made the subject of a bacteriological investigation by Dr. Manheimer of Columbia University, and independently by the Health Department. They showed that the Mikveh pools, as at present conducted, are a serious menace to the health of the people using them, and indicated the need of steps to render them sanitary. While no definite measures have as yet been formulated, the department believes that the enforcement of regulations similar to those recently adopted for floating baths would prove feasible. These provide for a preliminary cleansing shower bath, and include regulations regarding the cleanliness of the water in the pools.

Tuberculosis.—The Weekly Bulletin of the City Health Department has published a table giving figures relating to the occurrence of tuberculosis during the first quarter of 1914, and comparison with previous figures shows that the number of voluntary renovations in premises infected with tuberculosis has been steadily increasing. This is regarded as a very encouraging sign, indicating a better conception, by owners and agents of property, of the necessity for preventive measures, and of a greater readiness to comply with the requests of the department to do such work.

Mortality for Week Ending May 30, 1914.—There were 1547 deaths and a death-rate of 14.46 per 1000 of the population reported during the past week, as against 1323 deaths and a rate of 12.85 for the corresponding week of 1913, an absolute increase of 224 deaths, and an increase of 1.61 points in the weekly rate, which increase is equivalent to a relative increase of 168 deaths.

The following causes showed an increased mortality: scarlet fever, diphtheria and croup, typhoid fever, cerebrospinal meningitis, diarrheal diseases, acute respiratory diseases, pulmonary tuberculosis, nervous diseases and violence. There were ten deaths from sunstroke reported during the past week. Those causes showing a decreased mortality were measles and whooping cough. The mortality from digestive diseases, heart diseases, Bright's disease and nephritis was about the same.

Viewed from the point of age grouping there was an increase of 54 deaths of children under one year of age; between one and five years the mortality was approximately the same, between five and sixty-five years of age there was an increase of 122 deaths; and at sixty-five years and over there was an increase of 40 deaths, that is, all groups showed a considerably increased mortality except for the period of one to five years of age.

The death-rate for the first twenty-two weeks of 1914 was 15.29 per 1000 of the population, as against 15.43 for the corresponding period of 1913, a decrease of .14 of a point.

Appointments in State Department of Health.—The following appointments in the State Department of Health are announced: Member of the Public Health Council, Dr. T. Mitchell Prudden, emeritus professor of pathol-

ogy, Columbia University; consulting pediatrician, Dr. L. Emmett Holt, professor of diseases of children, Columbia University; director of the Division of Vital Statistics, Dr. Cressy L. Wilbur, chief statistician, United States Bureau of the Census. The latest issue of the *Health News*, which is the new title of the monthly bulletin of the department, is a "school principals' number, and opens with addresses to the school principals of the state by John H. Finley, LL.D., president of the University of the State of New York and commissioner of education, and Dr. Biggs, head of the Health Department. The latter states that he will in the future endeavor to make the monthly bulletin of special service to the school principals, and through them to the teachers and children, as well as to local health officers and other health workers. It will be the aim of the editor to include in each issue timely and important material under the heading "School Health Lesson."

HOSPITAL SOCIETIES FOR CLINICAL STUDY.—The organization of a society for clinical study has been ordered in each of the hospitals of the City Health Department. Each member of the staff will hereafter be expected to devote himself, during his spare hours, to the pursuit of some special topic or branch of medicine, and will be granted leave of absence from the hospital during stated hours each week for the practical study of the special subject assigned him.

HOSPITAL BEQUESTS.—Among the charitable bequests in the will of Mrs. Lina V. Happel of Brooklyn, N. Y., are $15,000 to the German Hospital of Brooklyn and $5000 to the Hospital for Ruptured and Crippled, Manhattan.

Current Literature

MEDICAL RECORD.

MAY 23, 1914.

1. VAN RAGGEN, N. J. P. *The Progress of Education of the Deaf and Dumb, and Some of the Difficulties of Aural Instruction.*
2. KAHN, M. *Calcium Therapy of Tuberculosis.*
3. *LANKFORD, J. S. *Pulse Pressure in Diagnosis and Prognosis.*
4. REHFUSS, M. E. *The French Aspect of Functional Liver Testing.*
5. SCHULTZE, E. C., AND GOLDBERGER, L. A. *A Report of One Hundred and Twenty-Three Cases of Scarlatina Treated by Vaccines and the Method of Milne.*
6. FERRY, N. S. *Study of Bacteriology of the Posterior Nasopharynx in Scarlatina.*
7. *KIEFER, G. I., AND FERRY, N. S. *Some Experiences with Bacterial Vaccines in Scarlatina.*
8. SEFF, I. *Retroperitoneal Hernia of the Appendix into the Ileoappendicular Fossa.*

3. Lankford discusses the determination of pulse-pressure in general practice and in life insurance work, and cites several cases which demonstrate its value. He finds the auscultation method more satisfactory than palpation. One of the cases cited is particularly interesting. A farmer, aged 27, was examined for insurance and recommended as a first-class risk by the examiner. The blood-pressure was reported as systolic 120 mm., diastolic 55 m.m. Suspicions of the low diastolic reading, the Company requested a re-examination after vigorous exercise. This showed rapid pulse, marked arrhythmia and an aortic murmur. The applicant would have been accepted but for his abnormal pulse-pressure.

7. Kiefer and Ferry report encouraging results from the vaccine treatment of scarlet-fever. Their vaccine is made from two organisms obtained from the posterior naso-pharynx of scarlatinal patients—a streptococcus and the micrococcus "S," described by Schultze. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

MAY 23, 1914.

1. WOODBURY, F. *The Treatment of the Insane in the Tropics.*
2. ALBEE, F. H. *The Inlay Bone Graft in Fresh Fractures.*
3. MALONEY, W. J. M. A., AND SORAPARE, V. E. *The Relief of States of High Vascular, Muscular and Mental Tension.*
4. SQUIER, J. B. *Surgery of the Hourglass Bladder.*
5. *BRODHEAD, G. L. *Vagitus Uterinus.*
6. BRAV, A. *The Preventive and Curative Treatment of Ophthalmia Neonatorum.*
7. LEWIS, W. M. *The Albumin Reaction in the Sputum.*
8. BIRDSALL, E. *Hyperthyroidism.*
9. HARTZELL, T. B. *The Surgical Relationships of Mouth Infections.*
10. MOSS, M. I. *Intestinal Parasites with Unusual Symptoms.*
11. FISHER, H. M. *Autoserotherapy in Fibrinoserous Pleurisy.*
12. BLOCK, S. *A New Psychosis.*

5. Brodhead reports a case of vagitus uterinus, the authenticity of which he expects will be questioned as usual. He did not hear the uterine cry himself, but he has absolutely no doubt of the correctness of the report of the two internes who did hear it. The patient was on the service of the Post-Graduate Hospital, New York. The second stage was prolonged and the interne had introduced his right hand into the vagina, preparatory to applying the left blade of the forceps when he heard a loud cry. The crying continued at intervals from that time until the head was extracted, thirteen minutes later. The child had a good color and was in good condition when born and was normal in every way during the puerperium. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 23, 1914.

1. *LOVETT, R. W. *The Causes and Treatment of Chronic Backache. With a Consideration of the Diagnosis of Sacro-Iliac "Relaxation."*

2. Field, C. W. *The Use of Cholesterin Antigen in the Wassermann Reaction.*
3. Martinez, I. G. *Fatal Attack of Filarial Lymphangitis Stimulating Bubonic Plague.*
4. *Griffith, J. P. C. *Diseases Connected with Meckel's Diverticulum, with Especial Reference to Diverticulitis.*
5. *Neuhof, H. *Supraclavicular Anesthetization of the Brachial Plexus. A Case of Collapse Following Its Administration.*
6. *Percy, J. F. *Best Methods of Discouraging the Activity of Inoperable Cancer. A Study of Heat in Cancer.*
7. Gunn, F. H., and Fairbrother, H. C. *Deep Wound of Brain.*

1. Lovett's article, though not suited to abstracting, is of very practical value and well analyzed.

4. Griffith's article contains a large mass of statistics boiled down and covers the symptomatology well.

5. Neuhof describes the technic of this method, its advantages which are distinct in certain cases, and also a case of collapse apparently due to the drug used and not to the method employed. He is in favor of this method of anesthesia in many shoulder and arm operations.

6. The author quotes Nidal, who states that the benefit derived in carcinoma treated by vaccines, etc., is solely from the heat generated by the reaction. The various reports of malignant growths diminishing in size after erysipelas assume a new significance with this theory in mind. The author believes that we can hope for the eradication of cancerous growths by attacking them through their vulnerability to heat. He then details his own experiments and technic. He believes the successful treatment of cancer depends more on the question of heat than on the actual cauterization. [E. H. R.]

Surgery, Gynecology and Obstetrics.

May, 1914.

1. *Krönig. *The Difference Between the Older and the Newer Treatments by X-ray and Radium in Gynecological Diseases.*
2. Grant, W. W. *The Treatment of Blood-Vessel Injuries.*
3. *Horsley, J. S. *Surgical Repair of Blood-Vessels: Its Technic, Its Uses and Limitations.*
4. Bryan, R. C. *Cancer of the Breast in a Boy Fifteen Years Old.*
5. Stein, I. F. *Eventration of the Diaphragm, with the Report of a Typical Case with X-ray Diagnosis.*
6. *Beckmann, E. H. *Complications Following Surgical Operations. A Report of the Complications in a Series of Six Thousand, Eight Hundred and Twenty-five Surgical Operations Performed in the Mayo Clinic in the Year 1913.*
7. McMurtry, L. S. *Hysteromyomectomy: Its Evolution and Perfection.*
8. *Dickinson, R. L. *Efficiency Engineering in Pelvic Surgery: One and Two Suture Operations.*
9. *Lewis, E. J. *Preliminary Report of Experimental Work in Bone Transplantation.*
10. Ryerson, E. W. *The Transplantation of Bone in Pott's Disease.*
11. Thomas, H. B. *Bone Transplant.*
12. Furniss, H. D. *Supernumerary Ureter Opening Extravesically.*
13. *Sampson, J. A. *The Influence of Ectopic Pregnancy of the Uterus, with Special Reference to Changes in Its Blood Supply and Uterine Bleeding. Based on the Study of Twenty-Five Injected Uteri Associated with Ectopic Pregnancy.*
14. Green, F. R. *Education and Publicity Through the Council on Health and Public Instruction of the American Medical Association.*
15. *Hill, R. *Congenital Pyloric Stenosis.*
16. *Kerr, J. M. M. *Operative Treatment for Malformations of Uterus and Vagina.*
17. Birnie, J. M. *A Method of Exposing the Pelvic Portion of the Ureter.*
18. Stark, S. *Technic Employed in Excision of a Carcinomatous Urethra.*
19. Bartlett, W. *A Simple Meat Method of Sterilizing Catgut; aften Ten Years' Use of It.*

1. The author devotes most of his paper to the technic of scopolamine-morphine anesthesia to produce painless labor. He considers x-ray and radium in treating malignancy valuable, but they may be very dangerous.

3. Horsley's article is beautifully illustrated with cuts showing his technic. He believes that blood-vessel suture is valuable in certain transplantations of organs, in repair of injuries to vessels, in replacing segments of vessels necessarily removed at operation, and in transfusion, which he preferably performs by suture of artery to vein.

6. Beckmann's analysis of the complications following surgical operations in 6825 cases in the Mayo Clinic in 1913 is very interesting. There was a percentage of .017 of infections, or 117 cases; 87 cases had pulmonary complications, none of which were fatal,—.012 per cent. These are divided as follows: Acute congestion, 21 cases; pleurisy, 18 cases; bronchitis, 21 cases; broncho-pneumonia, 12 cases; lobar pneumonia, 15 cases; thrombophlebitis, 14 cases. Figures seem to show that patients with infections are not more prone to have thrombophlebitis than the so-called clean cases. Acute dilatation of the stomach, 3 cases. There was one case of empyema of the chest following transplantation of right ureter for extrophy of the bladder. Three cases of bowel obstruction, 4 cases of cystitis, 1 post-operative miscarriage following appendectomy, 2 cases of neuritis, 2 of arthritis, 6 of tonsillitis, 3 of acute dilatation of the heart (all in thyroid cases), 3 cases of bleeding from wounds following severe jaundice, 3 cases of parotitis. None of these cases were fatal.

8. Dickinson's article on technic is beautifully illustrated by drawings and cuts. It is of practical value.

9. Lewis finds experimentally that cortical bone, free of its periosteum, endosteum, and marrow, will retain its vitality and proliferative powers when subdivided into small fragments and replaced in the tissues. Contact with living bone is unnecessary for the growth of these transplants. Transplanted fascia may take up the nutritional and limiting functions of periosteum.

13. Sampson, in an exhaustive article, shows that under the influence of an ectopic pregnancy there is an increase in the size of the uterus, which is due to two factors,—hyperemia and thickening of the endometrium.

15. Hill believes that all cases of pyloric stenosis in infancy submitted to operation should be fed on mother's milk. He believes operation is indicated when a tumor is present. Surgical treatment has a lower mortality than medical and the relief is immediate.

16. Kerr's article is well illustrated and of practical value. [E. H. R.]

Münchener Medizinische Wochenschrift.

No. 18. May 5, 1914.

1. Bäumler, C. *Vaccination in Relation to Smallpox.*
2. *Esch, P. *The Advantages of Cutaneous and Intracutaneous Tuberculin Reactions for the Diagnosis of Tuberculosis in Guinea Pigs.*
3. Kutschera, A. *Tuberculin Treatment by Percutaneous Injections.*

4. LESCHKE, E. *The Treatment of Respiratory Paralysis by Intra-bronchial Injections of Oxygen.*
5. ALLENBACH, E. *The Vaccine Treatment of Typhoid Fever.*
6. GRIESBACH, W. *Quantitative Determinations in Abderhalden's Pregnancy Reaction by Estimating the Nitrogen of the Dialysate.*
7. GWERDER, J., AND MELIKJANZ, O. *Abderhalden's Dialysis Method in Pulmonary Tuberculosis.*
8. HÜSSY, P. *The Clinical Importance of Vitamines.*
9. LOEW, O. *The Nature of the Blood Calcium.*
10. SAENGER, M. *Vascular and Cardiac Stimulants in Bronchial Catarrh.*
11. *SCHLESINGER, H. *Tuberculosis of the Pylorus and Stomach Wall.*
12. DESSAUER, F. *The Introduction of the Gamma-ray of Radium into Roentgen Tubes.*
13. DOLDI. *A Simple Pessary for Prolapse of the Uterus.*
14. METZ, C. *An Ocular Counting Chamber.*
15. MILLER, J. W. *Medical News from Bahia.*

2. Recent studies have shown that tuberculosis in guinea-pigs, after ten days from infection, can be diagnosed by tuberculin tests. Each has made comparative experiments with the cutaneous and intracutaneous injections of tuberculin for the purpose of determining which of these methods is of greater merit. According to his results, the intracutaneous reaction occurs more characteristically and earlier than the cutaneous reaction, and therefore this test is the more satisfactory for obtaining an early positive reaction in the first stages of the experimental disease.

11. Schlesinger states that tuberculosis of the stomach is not an extremely rare disease, but is difficult to recognize. Four types of lesion have been reported: 1. Tubercular ulcer at the pylorus. 2. Hypertrophic changes at the pylorus without ulceration. 3. Sclerotic and chronic inflammatory processes at the pylorus due to tubercle bacilli. 4. Tubercular adenitis around the pylorus with perigastric adhesions.

Clinical symptoms in any of these types of the disease are not characteristic; gastric lavage does not show constant findings; the x-ray picture is not typical; and a local tuberculin reaction is dangerous to attempt on account of the possibility of a resultant perforation. Hence the diagnosis, clinically, is usually overlooked.

Schlesinger reports a case which came to autopsy and which showed a localized tubercular abscess starting in the submucosa of the pylorus, and draining by perforation into the stomach and duodenum. Tubercles were found in the muscularis and serosa around the cavity.

A somewhat similar case has been reported by Mathieu-Rémond. Hence Schlesinger believes in pathological classification of tuberculosis of the stomach, a fifth type must be recognized, consisting of a circular tubercular abscess in the submucosa of the pylorus wall. [R. F.]

No. 19. MAY 12, 1914.

1. MAYER, A., AND SCHNEIDER, E. *Disturbances of Ovarian Function in Myoma of the Uterus, and Other Disputed Questions in Myoma.*
2. BERG. *The Storage of Albumin in the Liver after Feeding Albumin and Its End-Products.*
3. KLEE, P. *The Shape of the Stomach in Increased Vagus or Sympathetic Tonus.*
4. LUNCKENBEIN. *The Treatment of Malignant Tumors by Tumor Extracts.*
5. *BREUNING, F. *Paratyphoid Fever among the Children of Munich.*
6. KERN, H. *An Institutional Epidemic of Infantile Paralysis.*
7. CRONE, E. *Barium Sulphate as a Vehicle for the X-ray Diagnosis of Gastro-intestinal Disease.*
8. ROSENTHAL, J. *Deep Ray Treatment.*
9. VOGT, E. *The Treatment of Adiposity with Leptynol. (Preliminary communication.)*
10. WENZEL. *A Case of Marked Ankylosis of the Vertebral Column.*
11. *SCHEIDEMANDEL, E. A. *Transportable Bacteriological Thermostat.*
12. SPITZY, H. *A Blood-pressure Machine for Rendering the Extremities Anemic.*
13. *Krecke's New Sanatorium at Neuwittelsbach.*
14. FISCHER, A. *Franz Anton Mai, the Author of the First Public Health Law.*

5. During the past year, Breuning has collected eleven cases of paratyphoid infection out of 326 babies suffering from various types of gastro-enteric disease. The diagnosis was made by blood or stool culture or by agglutination tests.

Breuning recognizes clinically two types of paratyphoid fever. The first and less severe type resembles typhoid. The second type has symptoms of hemorrhagic enteritis. It is characterized by a weak, rapid pulse, and by profuse diarrhea with mucous stools of foul odor. Its etiology is not explained, though Breuning believes that infected milk may play a part.

These observations are reported for the practical purpose of emphasizing the importance of bacteriological studies in the feverish diarrheas of infants. By such studies Breuning considers that important factors may be discovered in the production of intestinal diseases.

11. Scheidemandel has devised a portable thermostat for the incubation of blood cultures and other bacteriological investigations made in private practice. The instrument consists essentially of a wide-necked thermos cylinder containing a rack for test tubes and agar plates. It is simple and affords a means for making blood cultures at the bedside, and for avoiding the customary exposure of the infected media to heat or cold or sunlight which is usually obtained between the time that the culture is taken and incubated in the laboratory. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 14. APRIL 6, 1914.

1. JESS, A. *Headache and Eyes.*
2. HEIMANN, E. A. *Further Experiences in the Association of Strabismus and Frontal Headache.*
3. KATZENSTEIN, M. *Bone and Periosteum Transplantation, Together with a Method for Treating Rigid Flat-foot.*
4. *D'AGATA, G. *Rectal Feeding after Operations on the Mouth and Pharynx.*
5. *STANGE, W. *On Prognosis after a General Anesthetic.*
6. JULINSBURGER, O. *Dial-Ciba, a New Sedative and Hypnotic.*

4. d'Agata, having in mind the frequency and danger of inhalation pneumonia after operations of this sort, has carried out metabolism experiments on two patients who were fed by rectum for ten to twelve days after operation. These investigations, which were exhaustive, prove that a patient can perfectly well subsist for this length of time after operation on nothing but nutrient enemata. He advises this measure, and in addition mentions favorably their technic following operations, which is to have the patient sitting up for twenty-four hours after operation, and then to allow him to get up, out of bed.

5. Stange suggests, as a test of the cardiac muscle before operation, investigation of the length of time a patient can hold his breath without discomfort. He has the patient, sitting up in a chair, take one deep breath and hold it as long as he can. In a series of

cases he finds that a normal person can easily do so for 30 seconds, that those with lung conditions and moderate mitral disease vary between 20 and 30 seconds, and those with severe heart lesions are under 20 seconds. As definite examples of the last group he gives,—

Insufficiency of aortic valve .....15 seconds
Chronic myocarditis .....17 seconds
Large aneurysm of aortic arch .....10 seconds

In view of the above he considers that a general anesthetic is contraindicated if a patient cannot hold his breath 20 seconds, and that if it is absolutely necessary to use one, ether is infinitely safer than chloroform. [R. H. M.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 103. PART 3.

21. *HAUSMANN, T. *The Localization of Abdominal Tumors by Means of Topographical "Sliding" and Deep Palpation.*
22. *HEIMANN, F., AND FRITSCH, K. *The Early Diagnosis of Carcinoma by Abderhalden's Ferment Reaction.*
23. BERNSTEIN, P. *The Predisposition to Hernia as Found in the Fetus and Infant.*
24. FRISCHBERG, D. *Injury and Traumatic Aneurysm of the Superior and Inferior Gluteal Arteries.*
25. KELLING, G. *The Mechanics of Lateral Anastomosis in the Gastro-intestinal Tract.*
26. BRIND, Z. *A Case of Gigantism with Atrophy of the Sexual Organs.*
27. MAYER, L., AND WEHNER, E. *A New Attempt to Ascertain the Value of the Various Components of Bone Tissue in the Regeneration and Transplantation of Bone.*
28. BLENKLE, E. *A New Case of Myositis Ossificans Progressiva.*
29. SASSE, F. *Treatment of Diffuse Purulent Peritonitis Following Appendicitis.*
30. MEYER, A. W. *Wound Infection in War. Experiences in the Balkan Wars of 1912 and 1913.*
31. HARZBECKER, O. *Metastatic Necrosis of the Ribs.*
32. DELFINO, E. A. *Hypertrophic Cecal Tuberculosis.*
33. BLUM, U. *Injection of Collargol into the Kidney Pelvis.*

21. Hausmann describes again his method of mapping out tumors, abnormalities and exudates within the peritoneal cavity by means of his "Gliding and Deep Palpation." He illustrates the article by diagrams showing his findings, and the case histories, operative results or autopsy findings for comparison. He believes that this method will give more reliable information than will radiography, in cases where the two methods disagree, and that the surgeon will be aided very greatly by his ability to use it. "The method," Hausmann says, "is to former methods of palpation as a modern chronometer is to an old sun dial."

22. Heimann and Fritsch applied Abderhalden's carcinoma test in 34 cases. In the great majority of cases the test proved its reliability, the reaction being especially strong when carcinomatous tissue from the same organ as the one suspected of malignancy was used. In two cases the test differed radically from the clinical diagnosis, and in both its correctness was proved later. In every case giving a positive test, cancer was found. [G. G. S.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

BAND 113. HEFT 5 AND 6. MARCH, 1914.

1. SCHUTZ, H. *Case of Multiple Myeloma with Bence-Jones Albuminuria and Metastases in the Right Tonsil.*
2. HUHLE, G. *Lymphocytosis and Its Diagnostic Significance.*
3. SCHRUMPF, P. *Blood-pressure Study and Investigations with the Energometer in High Altitudes with Cardiac and Circulatory Disturbances.*
4. VEIEL, E., AND KAPFF, W. *Studies on the Venous Pulse.*
5. ASAYAMA, T. *Aphasia with the Japanese.*
6. FISCHER, F. *Production of Meat Intoxication with the Eck Fistula in the Dog.*
7. v. HOESSLEN, H. *Observations on the Influence of the Vagus upon the Human Heart.*
8. *BRIEG, H. J., AND JAKOBSEN, B. *Blood-sugar Observations in Normal and a Few Pathological Conditions.*
9. JOSEFSON, A. *Dentition and Hair Development under the Influence of Internal Secretions.*
10. WENTGES, *Pharmacodynamic Test of the Vegetative Nervous System.*

8. With the Bang method for studying the sugar content in the blood these authors, working at Copenhagen, have studied a series of normal individuals and some pathological conditions, such as nephritis, diabetes mellitus and a few other cases. They conclude that the normal sugar content of the blood is 0.1 when determined by this method. Their variations ranged from 0.06 to 0.12. Usually in healthy people after a test meal containing 100 grams of sugar there is a variable increase in the sugar content of the blood in different people. The same also occurs after ordinary meals. In nephritis there is usually hyperglycemia, which is not dependent upon increase of blood-pressure, but upon other complications. In cases of gastric diseases, hyperthyroidism and neurasthenia no hyperglycemia was found. In pancreatic disease a hyperglycemia existed. In hyperglobulae there was an increase of blood sugar, due to the increased amount of reducing substance in the blood corpuscles. In diabetes the blood sugar was increased in fasting conditions as well as after mealtimes. Glycosuria may occur, however, without increased sugar in the blood, due to renal factors. The estimation of blood sugar is of good diagnostic and prognostic value. [C. F., JR.]

REVUE DE MÉDECINE.

MARCH, 1914.

1. *MARAÑON, G. *Hyperchlorhydria and Hyperthyroidism.*
2. MOLLARD, J., AND DUMAS, A. *"Gallop Rhythm" in the Course of and During Convalescence from Typhoid Fever.*

1. Marañon shows a striking relationship between hypersecretion of the stomach and hyperthyroidism. This relationship does not seem to hold in the advanced cases of Basedow's diseases. In the latter, because of prostration and asthenia, a decrease or absence of acidity is the rule. When hypersecretion is associated with the signs of increased thyroid activity it yields not to direct gastric treatment, but to that which brings relief to the over-excited thyroid gland. This is accomplished spontaneously, by the use of organic anti-thyroid substances or by extirpation of the gland. This as a matter of proof is considerable. In addition one must add the frequent association of these two conditions. Finally, hyperchlorhydria, like hyperthyroidism, may be provoked by artificial intoxication with organic extracts. [L. H. S.]

REVUE DE CHIRURGIE.

MARCH, 1914.

1. GUIBÉ, M. *Choleperitonitides with Apparent Integrity of the Biliary Passages.*

2. *BALTHAZARD, V. *A Case of Traumatic Spondylosis with Autopsy.*
3. WELSCH, H. *Pathogenesis of Retrograde Strangulation of the Intestine in W-Hernia.*
4. POTEL, G. *Essay on Congenital Malformations of the Limbs. Their Pathogenic Classification. (To be continued.)*
5. HARDOWIN, P. *Clinical and Experimental Study on Traumatic Backward Dislocations of the Knee. (To be continued.)*

2. Under the name of "Kümmel's disease," Balthazard reports a case of fracture with ankylosis of the ninth, tenth and eleventh thoracic vertebrae. [R. M. G.]

BULLETTINO DELLE SCIENZE MEDICHE.

JANUARY, 1914.

1. POPPI, G. *The Bologna Infant Asylum in the Decennium* 1901-1911.
2. *GAMBERINI, C., AND MASSI, W. *The Abderhalden Reaction.*

2. In a preliminary note, the authors compare the reaction of Abderhalden with that of Rosenthal, which is biologically similar, and is based on the inhibition of the trypsin digestion of casein by the action of special substances in the serum of pregnant women. [R. M. G.]

FEBRUARY, 1914.

1. *GHILLINI, C. *Fractures of the Pelvis.*
2. CAVINA, G. *The Treatment of Idiopathic Dilatation of the Esophagus.*

1. On the basis of the medico-legal evidence in a fatal case of fracture of the pelvis Ghillini makes an extensive study of this condition. In his case there was failure of union, complete permanent disability, traumatic psychoneurosis, and pellagra as the ultimate cause of death. [R. M. G.]

MARCH, 1914.

1. *BERETTA, A. *The Anatomic Conditions of the Teeth with Respect to the Origin of Caries.*
2. *PALMIERI, G. G., AND RIVETTA, C. *Some Muscular Variations Observed in the Same Individual.*
3. *ZANETTI, G. *Iodobenzolic Solution.*
4. MAGNI, E. *Exploratory Laparotomy is Imperative in Every Case of Gunshot Wounds with Various Projectiles in Regions Bordering on the Abdominal Cavity.*
5. MAGNI, E. *Can Prostatectomy be an Emergency Operation?*

1. This study of the dental enamel is a contribution to the etiology and pathogenesis of dental caries.
2. The authors report, in a single anatomic subject from the dissecting room, interesting variations in the infraspinatus, triceps, pectoralis major and minor, subscapularis, coraco-brachialis, extensor communis digitorum, and extensor proprius minimi digiti muscles.
3. Zanetti describes a new type of iodine solution made by Grossich's method. [R. M. G.]

IL POLICLINICO.

JANUARY, 1914.

MEDICAL SECTION.

1. CIUFFINI, P. *A Clinico-Pathologic Contribution to the Study of Luetic Meningo-myelitis.*
2. PHILIPPSON, L. *Observations on the Wassermann Reaction in Syphilis.*
3. SISTO, P. *Studies on Progressive Pernicious Anemia.*

SURGICAL SECTION.

1. CHIAROLANZA, R. *Antonio d'Antona.*
2. UFFREDUZZI, Q. *Contributions to the Experimental Surgery of the Organs of the Mediastinum, Exclusive of the Heart.*
3. *PIGNATTI, A. *Deferential Implants. (Conclusion.)*
4. SERAFINI, G. *Considerations on an Attempt at Semiarticular Homo-Necro-Transplantation of the Proximal Part of the Humerus Made in a Case of Resection of the Upper Extremity of the Humerus for Sarcoma.*
5. BARTOLOTTA, E. *Endothelioma of the Sheath of the Optic Nerve. Resection of the Nerve with Conservation of the Eyeball.*
6. SEGRÈ, M. *Does Osmic Acid Really Excite Osteogenetic Activity?*
7. CAMERA, W. *Clinical and Histologic Contribution to the Study of Osteofibroma of the Maxilla.*

3. As a result of his experiments, Pignatti believes he has demonstrated that it is possible to restore the continuity of the interrupted vas with vasal segments, whether arterial or venous, also with segments of vas from the same animal, or of tube from the same species. Invagination of the vas into the transplant assures the best result, though there may be some stenosis of the lumen. [R. M. G.]

Miscellany.

REORGANIZATION OF THE STATE BOARD OF HEALTH.

IN last week's issue of the JOURNAL we published a communication from Dr. A. K. Stone relative to the proposed reorganization of the Massachusetts State Board of Health. The following letter to the daily press by Dr. George W. Gay on the same subject seems to deserve republication as a valuable contribution to the discussion of this important question:—

"If the State Board of Health is ever to be reorganized, the present conditions offer a peculiarly favorable opportunity for carrying out the necessary plans.

"1. After thirty-three years of exceptionally efficient and valuable service, Dr. Walcott retires. He has achieved an international reputation as a wise and practical sanitarian.

"2. We have an executive who is thoroughly in sympathy with the best ideals pertaining to public health. Instead of rushing blindly forward in his efforts at reform, he calls to his aid experts who have the confidence of the scientific world and defers to their judgment in all pertinent matters. This is the true spirit. It merits the support of the public.

"3. Public health occupies a position of importance today never before attained in this country. Only men of the highest qualifications, similar to those of the retiring chairman, are capable of directing them successfully. While the board has done excellent work in the past,

considering the limitations imposed by the state, in the opinion of many reliable authorities the time has come by reason of the growth of the work and the demands of the public for a change in the organization of the board.

"4. As this is an age of individual responsibility, a board with one head and a cabinet or council would seem to be the best plan. The health commissioner should give his entire time to the work. The salary should be sufficient to command first-class talent. There should be no politics in the appointments.

"5. Dr. Walcott should have received a salary for his services. The physicians in this state do too much work for nothing. Why should they be required to serve the state for nothing, in positions as important as the chairmanship of the Board of Health? The citizens of Massachusetts are not mendicants. Hence a paid Board of Health is a step in the right direction.

"It by no means follows that all of the unpaid boards of our charitable institutions should be replaced by paid supervision. Many of the present boards are doing satisfactory work at a reasonable expense to the state. There would seem to be no good reason for a change under those circumstances.

"The two principal essentials of efficient and satisfactory management of the charitable institutions of this state are, first, a harmonious board of trustees, and, second, the right sort of a superintendent. Without the latter, the best results are impossible. With the right kind of a superintendent fairly good work may be accomplished even under a wrangling board of trustees. The trustees are responsible for the efficiency of the superintendent, the governor and council for the trustees.

"Political appointments, here as elsewhere, are liable to result unsatisfactorily. Paid trustees will do no better work than the unpaid. This is largely a personal equation. No one should be required to give all, or even a large proportion of his time to the state for nothing.

"With the right kind of a superintendent many of our unpaid boards do not need to give an unreasonable amount of time to their duties. Plenty of public-spirited, broad-gauged persons with no axes to grind are available for service on the unpaid boards. In the opinion of most of the disinterested authorities the character of their service leaves little to be desired either in efficiency or in expense. For these reasons it would seem wise to leave most of the unpaid boards alone. The State Board of Health is an exception to the rule."

AMERICAN DOCTOR STUDIES TYPHUS.

An American doctor, Clarence D. Ussher, has received hearty and public thanks from the vali of the Turkish vilayet of Van for his "humane zeal and care for the sick" in the recent epidemic of typhus among the Turkish soldiers quartered in the city of Van.

Van, the city, is the center of the Turkish provinces of the same name, in the northeastern corner of Asiatic Turkey. On its eastern border the vilayet joins Persia, while on the north it is very near the Russian Caucasus. The city is on the shore of Lake Van, a large sheet of water whose surface is 5500 feet above tide level. The city is said to have been built by Semiramis, and strange and interesting inscriptions and carvings are found in and about it.

Since the American Board of Foreign Missions began work there the mission has been through war, famine, pestilence and massacre, and the epidemic of last winter will take its place in the history of calamities which Americans have helped the people to fight.

The Turkish military authorities were not insistent on cleanliness and sanitation, and after the epidemic started it made rapid headway so that over 2500 soldiers are known to have died of the disease. Dr. Ussher was active wherever he was permitted to serve, but had not access to the barracks or to the military hospital. In the Board's hospital, however, and in going about among the sick in the camp and in the city he made careful study of the disease, and says:—

"We have proved very conclusively in our hospital that the only means of infection is vermin. Our nurses have been thoroughly exposed to every form of contagion from the breath, desquamation, discharges, constant association day and night, and all this in an over-tired condition, and not one of them contracted the disease. The typhus patients have been put in the same ward with surgical, pneumonia, dysentery, and even confinement cases, and not a single patient has become infected in the hospital.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FROM MAY 4 TO MAY 23, 1914.

May 2, Asst. Surgeon N. R. Sullivan, detached, Canacao Hospital to *Villalobos*.

May 4, Medical Inspector N. J. Blackwood, Commissioned from September 29, 1913.

Asst. Surgeon M. H. Stenhouse, M.R.C., Commissioned April 4, 1914.

Asst. Surgeon W. A. Stoop, M.R.C., Commissioned April 4, 1914.

May 6, Medical Director T. A. Berryhill, detached, Navy Yard, New York, to Naval Hospital, Great Lakes, Ill.

Surgeon C. M. DeValin, to Navy Yard Station, Portsmouth, Va.

P. A. Surgeon R. E. Stoops, detached, Marine detachment, Pensacola, Fla., to *New Jersey*.

Asst. Surgeon J. W. Boyce, M.R.C., resignation accepted May 14, 1914.

May 7, P. A. Surgeon L. M. Schmidt, detached, *New Jersey* to *Louisiana*.

May 8, P. A. Surgeon W. H. Halsey, detached, Naval Medical School, Washington, D. C., to *Montana*.

May 8, Surgeon C. St. J. Butler, detached Medical Supply Depot, to home and wait orders.

P. A. Surgeon A. E. Lee, detached, Marine Detachment, Peking, China, to *Galveston*.

P. A. Surgeon M. A. Stuart, detached, *Galveston* to Marine Detachment, Peking, China.

Asst. Surgeon W. E. Bradbury, M.R.C., Naval Hospital, Philadelphia, Pa.

May 11, Asst. Surgeon L. L. Pratt, to Philadelphia, Hosp tal.

Asst. Surgeon J. G. Omelvena, to Newport Hospital.

Asst. Surgeon J. V. Howard, to Mare Island Hospital.

Asst. Surgeon H. M. Stenhouse, M.R.C., to Las Animas Hospital.

May 14, Surgeon J. S. Taylor, detached, Naval Training Station, Great Lakes, Ill., to *Illinois*.

May 15, P. A. Surgeon R. W. DeDowell, to *Ozark*.

P. A. Surgeon J. B. Kaufman, from *Ozark* to Great Lakes Training Station.

May 16, Surgeon Lewis Morris, detached, Fleet Surgeon, Asiatic Fleet, to treatment civil hospital, Shanghia, China.

Asst. Surgeon N. R. Sullivan, detached, *Villalobos* to treatment Civil Hospital, Honkow, China.

May 19, P. A. Surgeon W. B. Owens, detached, Marine Detachment, Managua, Nicaragua, to *Talahassee*.

May 22, Act. Asst. Surgeon C. K. Miller, revocation of appointment as Act. Asst. Surgeon to take effect May 22, 1914.

May 23, Surgeon F. L. Benton, detached Receiving Ship, Navy Yard, Norfolk, Va., to Marine detachment, Pensacola, Fla.

P. A. Surgeon W. H. Connor, detached Naval Hospital, Boston, Mass., to *Isle De Luzon*.

P. A. Surgeon J. B. Mears, to Naval Training Station, St. Helena, Va.

Asst. Surgeon F. H. Bowman, M.R.C., to Naval Hospital, Boston, Mass.

SOCIETY NOTICES.

THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION. —The seventeenth annual meeting of the American Gastro-Enterological Association will be held at Hotel Chalfonte, Atlantic City, N. J., on Monday and Tuesday, June 22 and 23.

FRANKLIN W. WHITE, M.D., *Secretary*.

THE PSYCHOPATHIC HOSPITAL.

74 Fenwood Road, Boston.

THE SECOND ANNUAL CONFERENCE on the Medical and Social Work of the Psychopathic Department of the Boston State Hospital will be held in the Assembly Room, four to six p.m., Friday, June 26, 1914, under the auspices of the Trustees of the Boston State Hospital. (Brookline or South Huntington Avenue cars; allght at Fenwood Road.)

PROGRAM.

I. Introductory Remarks. Dr. Walter Channing, Chairman Board of Trustees, Boston State Hospital.

II. The Prophylactic Functions of the Psychopathic Hospital, with Special Reference to Admissions of the "Not-Insane." E. E. Southard, Director.

III. The After-Care Program and Results of the Psychopathic Hospital, Boston. A. Warren Stearns, First Assistant Physician, in charge of out-patients.

IV. Further Notes on the Economic Side of Psychopathic Social Service. Mary C. Jarrett, Director Social Service.

V. High-grade Mental Defectives in a Group of Adolescents Studied at the Psychopathic Hospital. Thomas H. Haines, First Assistant Physician.

VI. Genetic Factors in One Hundred Cases of Psychoneurosis (Out-Patient Department). Donald Gregg, Assistant Physician, Out-Patient Department.

VII. A New Point Scale for Measuring Mental Capacities. Robert M. Yerkes, Psychologist.

VIII. Experience with the Martin Electric Threshold Test in Psychopathic Cases. G. P. Grabfield, Interne.

IX. Experience with the Lange Colloidal Gold Test in Various Cerebrospinal Fluids. H. C. Solomon, Interne.

X. Cases to Illustrate Symptomatic Psychoses of Cardiorenal Type. Frankwood E. Williams, Assistant Physician.

XI. On the Margin of Error in Psychopathic Hospital Diagnoses. A. Warren Stearns and E. E. Southard.

XII. Points Concerning Salvarsan Therapy. H. M. Adler, Chief-of-Staff.

(For convenience of social workers and physicians, the more social papers have been placed early and the more medical papers late on the program.)

RECENT DEATHS.

DR. L. M. BAKER, who died of cardio-renal disease on May 27 at Lynn, Mass., was born in 1869. He received the degree of M.D. from Boston University in 1894, and since that time had practised his profession in Lynn. He is survived by his widow and by one son.

DR. EMIL GRUENING, of New York, died from cerebral endarteritis on May 30. Dr. Gruening was born in Hohelsalza, Prussia, in 1843, and came to this country in 1862. He was in active service with the Seventh Regiment, New Jersey Volunteers, during a considerable portion of the Civil War, and in 1867 was graduated from the College of Physicians and Surgeons, New York. He practised in New York, and became distinguished as an eye and ear specialist. Among the positions which he held were, surgeon to the New York Eye and Ear Infirmary, consulting ophthalmic surgeon to the German Hospital and Dispensary, and consulting ophthalmic and aural surgeon to Mount Sinai Hospital and the New York Infirmary for Women and Children. Dr. Gruening had the high honor of being elected president of both the American Ophthalmological Society and the American Otological Society.

DR. ARTHUR W. SWANN, who died in New York recently, was born at Chattanooga, Tenn., in 1880. He graduated from Harvard in 1903 and from the New York College of Physicians and Surgeons in 1907. Since 1909 he had been an instructor at the latter college and assistant physician at the Presbyterian Hospital. He is survived by his widow and by two children.

AMOS LAURENCE MASON, M.D., a Fellow of the Massachusetts Medical Society, died at Albany, N.Y., June 5, 1914, aged 72 years. He was a graduate of Harvard College in the Class of 1863, was in the Harvard Law School 1863-1864, and graduated from the Medical School in 1872. He was house physician to the Massachusetts General Hospital from 1871-1872; Boston Dispensary and Carney Hospital, 1874-1878; visiting physician Boston City Hospital, 1878-1903.

Original Articles.

A POSSIBLE FACTOR IN THE PRODUCTION AND DISTRIBUTION OF EDEMA.*

By Frederick C. Shattuck, M.D., Boston.

Is there one among us who has not been struck, if not puzzled, by the curious distribution of edema, especially in cases obviously of mechanical obstruction to the circulation? We see, for instance, two cases of mitral disease with failure of the myocardial compensation. The physical signs and symptoms taken altogether indicate lesions similar in kind, as well as degree, and also an approximately equal myocardial weakness. The parallelism between the two cases may be accentuated by an equal rapidity and degree of improvement under, for all practical purposes, identical treatment. The sequence of events is mechanically impeded circulation, dilatation of the right heart annulling compensatory hypertrophy, over-plus of blood in the venous system, stasis, dropsy. A difference in the degree of the dropsy in the two cases may be readily accounted for by differences in the lesion, valvular, myocardial, or both, which elude any means now in our powers to estimate. But it would seem that the distribution of the edema should be essentially the same. It is, however, notoriously not so. In one case we see dropsy chiefly or only in dependent parts, especially the legs; in another the great serous sacs are markedly involved with a varying degree of stasis in the lungs, liver and kidneys and little or no anasarca; in still another stasis shows itself mainly in an enlarged liver; in short, seemingly similar mechanical conditions show results which vary far more widely than one would, off-hand, expect.

Long ago a possible, at least partial, explanation occurred to me. I have not seen it in print or heard it suggested, and venture to lay it before you, keenly realizing its hypothetical nature, and how far removed it seems, at present, from direct evidence. The Bertillon system shows that by a sufficient number of accurate measurements any person can be distinguished from every other person. Even more remarkable proof of the individuality of the individual is afforded by the fact that no two persons have the same finger prints. Is it not at least possible that analogous variations may exist in the texture of the tissues, of the organs, in the blood, or one or another of its constituents, which may be a factor in the distribution of edema?

In the urticarias, perhaps especially the giant form, and in angio-neurotic edemas, a nervous element must play an important part; but it would seem possible that individual peculiarity of tissue may play a part in the localization of the striking superficial changes.

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ON THE SIMULTANEOUS OCCURRENCE AND INTERRELATION OF BASEDOW'S DISEASE AND TABES.

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[From the II Eye Clinic, Prof. Fuchs, Vienna.]

Pierre Marie in 1892 was the first to call attention to the simultaneous appearance and possible interdependence of the symptoms of Basedow's disease with those of incipient or already well developed tabes. In a clinical lecture on the vascular apparatus, as affected by tabes, he says, "les lésions et ces troubles sont multiples et peuvent frapper de façons diverses le coeur et les vaisseaux. En connextion avec ces troubles vasculaires j'aurai l'occasion de vous parler d'une complication signalée tout récemment: le goître exophthalmique." Since Marie's remark on the subject very little has been written about it. Sattler in "Die Basedow'sche Krankheit" issued as a part of Graefe-Sämisch's "Handbuch der Augenheilkunde" mentions and gives a short abstract of the cases reported: by Joffray, 3; Barie, 1; Sechchieri, 3; P. Marie and Marinesco, 1; Ingelhans, 1; Moebius, 1; Lewinek, 1; Timotheef and Mannheim, 2; Kollait, 1; Hudovering, 1; Charcot, 1; Delearde, 1; Wiener, 1; Cohen, 3; Bernhardt, 1. Oppenheim, Eppinger, Strümpell and von Mehring refer to the condition in a few words. In view of the small number of reported cases and the scarcity of literature on the subject, I shall review the salient points as found in a study of the reported cases and literature. Oppenheim in his "Lehrbuch der Nervenheilkunde" raises several interesting points as regards tabes, from the standpoint of the observer also interested in Basedow,—that in tabes epiphora, without local disease of the tear-conducting passages, or tic-like winking of the upper lid, or hyper-esthesia in the neighborhood of the eye, may be found as part of a fifth nerve lesion. These conditions are also not infrequent ones in Basedow's disease. Interesting for the same reasons are the following remarks: "To be especially regarded in early tabes are a number of symptoms displayed as the effect of lesions in the territory of the vago-accessorius. Chief of these is the habitual frequency of pulse, which in not an inconsiderable number of cases may be found early in the disease." In tabes also there may exist, as Oppenheim points out, signs and symptoms directly referable to diabetes mellitus, so that one may be led to the diagnosis of tabes with diabetes, of diabetes with tabes, or finally admit the two to be coexistent, if not dependent

upon each other in these cases. Westphal's sign, paresthesias, lancinating pains, paralysis of ocular muscles, loosening and shedding of teeth, impotence, may be found in diabetes. Williams and Marinesco have in a few rare cases of clinically well marked diabetes even found typical atrophy of the posterior columns. Addison's disease may also show a few symptoms usually associated with tabes, such as Westphal's sign; in one case Bernardi showed a degeneration of the posterior columns. Of tabetic symptoms, which are often among those of the sufferer from Basedow's disease, Oppenheim mentions psychic anomalies, disturbances of general nutrition, motor-weakness, tremor, discoloration of the skin, and diarrhea. The occurrence of Basedow's disease at the same time and as a possible result of other diseases, has been noted a number of times. Walzberg reported a sarcoma of the cranial floor with optic neuritis and Basedow, Oppenheim a hemorrhagic destruction of the posterior inner capsule, with hemi-anesthesia and hemi-ataxia in a woman of 42, who had had Basedow's disease for half a year; the same author also a case of hemi-anesthesia and hemi-ataxia caused by hemorrhagic destruction of the posterior inner capsule, showing shortly after this symptom of Basedow's disease; Joffray and Ashard a combination of Basedow's disease and syringomyelia, as also did Spillman; Moebius and Gordon cases of Basedow's disease with paralysis agitans; Savage, one combined with progressive paralysis; Reynolds a case of disseminated sclerosis and Basedow; Ziegel, Graves' disease combined with scleroderma and a positive Wasser mann reaction.

The symptoms of Basedow's disease followed in the train of the symptoms of the others mentioned in all but one of these cases, and in such fashion that the authors suggest the other disease to have acted in some way as the "Auslösendes Moment." Its occurrence immediately after or during the course of hysteria and various psychoses, of which are to be especially mentioned the melancho-manic type, dementia precox, and hallucinatory paranoia, is a not uncommon occurrence.

Finally a direct if short statement is made as regards its occurrence coincident with tabes: "Most frequently we find tabes combined with hysteria, occasionally with epilepsy, seldom with myasthenic paralysis and diabetes; very seldom indeed with Basedow's disease." Sattler expresses himself as follows regarding the combined picture of tabes and Basedow's disease: "The coexistence of Basedow's disease and tabes appears on the whole to be very infrequent. There exist, however, a number of cases where the coincidence of these diseases has been surely established. If the characteristic symptoms of both are well developed the diagnosis offers no difficulty. On the other hand, if only a few signs of the one or of both exist, it is questionable as to how far one may go in assuming the combination of Basedow's disease and tabes to be present; for we know that in exceptional instances a transient absence of the patellar reflex may occur in Basedow's disease as well as parapareses almost simulating ataxie, with paresthesias of various kinds, and that on the other hand, as Charcot has pointed out, tabetics not infrequently show habitual tachycardia, and that often in the early stages of their disease, as also states of anxiety with tachycardia and arrhythmia of almost the character of an angina pectoris. Again quoting P. Marie in his original lecture on the subject, "Donc fréquence dans le tabes d'un des symptomes cardinaux du goitre exophthalmique, la tachicardie."

Bernhard Sachs in Osler's System, volume on "Disease of the Central Nervous System," does not mention the disease picture, nor does the picture as such receive recognition or even mention in other text-books except those of Oppenheim, von Mehring, Lewandovsky and Sattler, already quoted. Yet, as P. Marie says at the close of this lecture, illustrated by clinical cases: "Cette coincidence de la maladie de Basedow et du tabes est-elle donc un fait extrement rare? Eh bien non, Messieurs!"

Judged by the history and physical findings of the following cases, I believe P. Marie's opinion to have been correct, and that the coincidence of these diseases and a possible relationship when they are so coincident, has been somewhat neglected in our literature and teaching.

CASE 1. The patient sent by Professor M. in Krakau, who in 1911 had found a visual acuity of 6/9 with +3 sp. both eyes. Color perception somewhat diminished. The patient admitted having contracted lues 24 years ago, and had been treated thoroughly with mercurial injections. In 1902 he had been given a glass to read with because of an internal ophthalmoplegia. Both papilla had begun to show slight discoloration since 1896. In 1912 bilateral exophthalmus had been noted. His wife had borne one healthy child; had had two abortions.

Physical Examination. Male, 66 years old, presents an unusually emaciated appearance; the thyroid is slightly and uniformly enlarged, soft, no pulsation. Pulse varies between 102-110 a minute. The protruded tongue and extended hands tremble slightly. Marked bilateral exophthalmus. Hertel, 27. Lid margins widely separated, movements of eye in all directions normal, the right eye, however, often turns outward (Moebius). Graefe's sign absent, Stellwag's present. Both pupils enlarged, left more so than right; pupillary reaction to light and convergence completely absent. The right papilla chalky white, the temporal half showing a shallow excavation; this is also the condition of the left papilla. Margins of the disc sharply outlined; vessels unchanged. The right patellar and tendo Achilles reflex present but weak, the left ones absent. Romberg indicated. In the territory of the right ulnar nerve a subjective feeling of "going to sleep"; an area of anesthesia, band-shaped, over the right mammary region. No lancinating pains, no headaches. Wassermann reaction positive. The patient has taken iodides for many years.

Case 2. Marie M., 42 years. The patient complains of an unsteady gait during the last five years, and that this is increasing. She has noticed a diminution in vision since several months; during this time she has also lost a great deal of weight, perspired freely and felt extremely nervous and "jumpy"; she has noticed her exophthalmus since one month. She also complains of sharp, "tearing pains" in her leg. Of tabetic signs shows unequal and dilated pupils R-L. No reaction to light, convergence reaction unimpaired. Both optic discs are quite gray, temporally, of a slightly yellow gray color in their nasal halves. Disc margins clear cut, retinal vessels normal. Both patellar and tendo Achilles reflexes absent. Romberg marked. The walk is of a markedly ataxic character. No paresthesias. Wassermann positive; marked bilateral exophthalmus. Hertel, 28. Von Graefe's and Dalrymple's sign present. Pulse varies between 115-120; marked tremor of extended hands and tongue; thyroid gland easily palpable, no pulsation. Vision both eyes, 6/24. The visual fields show marked concentric narrowing, especially for red.

Case 3. Alfred M., 52 years. The patient admits lues 15 years ago, states that he was treated at that time with repeated mercurial inunctions. He presents a mixed picture of tabes and Basedow, the signs and symptoms of the latter causing him to consult the clinic; tall, thin, extremely nervous, quick and abrupt in movement, with a roving, unsteady glance. Marked exophthalmus. Hertel, 28. Moebius, Graefe, Dalrymple evident; marked fine tremor of extended hands and tongue. Pulse 120. He perspires very easily and has lost a good deal of weight recently. The thyroid is barely palpable, no thrill, no bruit. Both pupils considerably wider than normal, equally so, reacting neither to light nor accommodation. Both patellar and tendo Achilles reflexes absent. Romberg barely indicated. An area of hypalgesia from the 4th to the 13th rib, right side. Belly reflexes somewhat tardy and barely perceptible. Fundus normal. Vision, B. E. 6/6. Wassermann positive.

Case 4. Isidor W., 58 years. Typhoid fever when 15; gonorrhea at 20; luetic infection denied; married, first 2 children still born, then 4 healthy children. For 5-6 years, loss of sensation in ulnar nerve territory of right arm. Later atrophy of thenar eminence, right hand. Exophthalmus for last 10 years. Had lost a good deal of weight up to 1½ years ago, but since then has gained 10 lbs. Perspires easily and freely, is nervous and excitable. Has had urinary retention relieved by catheterization for two years. Sexual ability not impaired. In the last two years he has stumbled and fallen frequently. Has undergone several inunction treatments, about the time and extent of which he is uncertain. Examination shows exophthalmus of marked degree. Hertel, Moebius, Graefe, Stellwag absent. Very marked intention tremor of the hands, tremor of extended tongue. Pulse, 120. No enlargement of thyroid gland. The dorsal surface of both hands show a diminution of sensibility and unequal perception of painful stimuli. Marked atrophy of thenar and antithenar eminences as well as interossei. Both patellar and tendo Achilles reflexes absent. Romberg well marked. Fundus normal. Vision, B. E. 6/6. Pupils contracted, no reaction to light, reaction to convergence present. Wassermann negative.

Case 5. Eduard R., 43 years. The patient presents himself because of failing vision. He shows a right sided ophthalmoplegia externa of marked degree, which had appeared first six years ago, had changed for the better occasionally, but has become markedly worse during the last year. Slight paresis of the facial of the same side. Deep and superficial reflexes normal. No Romberg. Pupillary reaction normal. Vision, B. E. 6/18, not improved by glasses. Fundus, papillae uniformly light gray in color, sharply outlined, retinal vessels unchanged. The field of vision shows a uniformly concentric contraction for white of moderate degree, but of marked degree for all colors. In addition to the above tabetic signs he presents a moderate degree of exophthalmus. Hertel, 24. Dalrymple present. Graefe and Moebius absent; thyroid easily palpable, no pulsation; the extended hands and tongue show a slight tremor. Pulse, 120 to 130 a minute. States that he has felt restless and nervous during the last weeks, has perspired markedly and had constant diarrhea; loss of weight said to have been considerable. He admits having acquired lues 25 years ago. No treatment. Wassermann positive.

Case 6. Albertine Sch., 31 years. The patient presents herself complaining of diplopia. States that she also "saw double" the previous year, lasting 6 weeks. She is found to have a paresis of both superior oblique muscles. The right pupil is constantly somewhat larger than its fellow, and reacts less promptly to light; reaction for convergence normal. The right Achilles reflex cannot be elicited even with Jandrassek's manoeuvre. Patellar reflexes normal. No areas of anesthesia. Romberg absent. The fundus normal; both discs show well marked physiological excavations. In addition to the above signs of a tabes incipiens there are present an enlarged thyroid, a fine tremor of extended hands and tongue, pale moist skin, a pulse of 110 and a moderate degree of exophthalmus. Hertel, 23. Has lost 25 lbs. in the last 4 months, during which period she has also become very irritable and unstable in her emotions, easily excited and worried. During this time she has been treated at a medical clinic in Vienna, taking the following prescription every week: Kalil jodati 5,0, aquae fontanae 200/0. She admits having contracted lues 10 years ago. Wassermann positive.

Case 7. Adele B., 42 years. The patient presents herself because of the exophthalmus. This she has had to a slight degree for two years, accompanied by a decided feeling of general weakness, marked perspiration and tachycardia, these all having increased markedly in the last six months. Of the signs of Basedow's disease, she shows enlargement of the thyroid, without pulsation or bruit, tremor of extended hands and tongue, tachycardia, a pulse of 120 and exophthalmus. Hertel, 27. Von Graefe's and Dalrymple's signs present. Moebius absent. There has been a decided loss in weight; both pupils wider than normal, slight anisokorie, reaction to light absent. Patellar and tendo Achilles reflexes absent. Slight Romberg. No ataxia. Fundus in all details normal. Wassermann positive.

Case 8. Therese M., 46 years. The patient presents herself because of failing sight. Vision found to be B. E. 6/18, not improved by glasses. Examination of her visual field by Bjerrun's method shows

a concentric contraction of the field for red with temporally a U-shaped indentation corresponding to a similar but slighter one for the white field, which was also concentrically narrowed. The fundus showed a well marked primary atrophy of both optic discs. She states that she noticed diplopia lasting a month, six years ago. In the last three to four years she has often vomited green matter, suffering at the time with severe pain in the epigastric region. At present she complains beside the failing sight, of great nervousness, of "feelings of anxiety" accompanied often by profuse perspiration, especially at night. She feels weak and is short of breath; in the last three months has lost 15 lbs. in weight. Examination shows an easily palpable thyroid, no pulsation, a slight degree of exophthalmus. Hertel, 22. The right eye stands in a convergence of 10°, possibly due to the former abducens paralysis, with consequent contracture of the antagonist,—diplopia cannot be elicited now. Graefe, Dalrymple, Moebius, absent. Pulse, 125. Fine tremor of extended hands and tongue. Patellar and tendo Achilles reflexes absent. Pupils normal. Wassermann positive.

Eight cases of this character in the space of three months among the ambulatory of the clinic lead Fuchs to the not unnatural supposition that this condition is more frequent than has been up to now supposed; and as many come to an eye clinic first, partly because of the exophthalmus, partly because of their failing sight, due to tabetic nerve atrophy, partly because of the motor instability which is often felt as a dizziness and referred to the eyes, a good number have no doubt been overlooked.

Careful survey of these histories and physical findings can leave no doubt that all were afflicted at one and the same time with Basedow's disease and tabes. A survey of the literature, scanty as it is, the finding of 8 of these cases within the last three months in one clinic, and granting the very probable supposition that many of these cases exist but are overlooked, neither ophthalmologist nor internist examining Basedow patients with reference to tabes, which, as we have seen, is in nearly all these cases incipient, its symptomatology often masked by the more striking picture of the Basedow component, surely dispels the assumption that when found together, we are facing two absolutely separate and independent affections happening to coincide in time.

In the further discussion of the possible relationship of the symptoms in these cases, I believe it will become clear that we are not dealing with coincidences. Summing up the cases it can be said: All but 1 show a positive Wassermann reaction; all show the cardinal symptoms of tabes; Argyll-Robertson, absence of patellar or tendo Achilles reflex; all but 2 Romberg's sign; 3 cases in addition to the cardinal symptoms primary optic atrophy; 1 case marked ataxia, 2 cases distinct areas of paresthesia, 1 lancinating pains. Six of the 8 admit having had lues. There can be no doubt that we are dealing with 8 tabetics. As a group they present just as typical a picture of Basedow's disease. All show exophthalmus, a pulse varying from 95-120, and fine tremor of extended hands and tongue; a palpable and enlarged thyroid, though to slight degree in all but one; all complain of perspiration, of restlessness and nervousness. All show marked loss of weight. The summing up of these signs and symptoms meets the very justified warning of Von Mehring: "One must beware of the diagnosis of 'secondary Basedow' or 'forme fruste,' if a few of the great number of symptoms of hyperthyroidism are found in connection with paralysis agitans, tabes, certain psychoses, in the course of chronic iodide intoxication, with chlorosis, or during excessive thyroidin treatment." Two of my cases had been taking iodides and it is a question as to whether they belong in the type picture. They are instructive in another regard, however, to be referred to later. There is no case in which any one of the signs here ascribed to Basedow, or the combination of them in any case, could be counted as belonging to the tabes, with the exception of the rapid pulse. This, however, in view of all the other signs and symptoms of Basedow's disease, can be safely reckoned as belonging to this latter.

The "time occurrence" of the two diseases is an aspect of the combination on which Sattler has collected some interesting data. In the cases of Joffray, Barie, Sechchieri, P. Marie, and Marinesco, the two were found coexistent at the first examination of the patient, who could not tell which group of symptoms had commenced first. In a second case of Joffray and in one of Moebius', the symptoms of both appeared at the same time; in Moebius' case lightning pains, diplopia, tremor and tachycardia were all equally marked and had appeared at the same time; Argyll-Robertson, optic atrophy, absence of patellar reflex, Romberg, exophthalmus and struma were found combined at the first examination. In the cases of Lewinek, Timotheef and Mannheim, and in one further case of Joffray the cardinal symptoms of tabes had existed for five years, to be followed by typical Basedow; in one case only was exophthalmus missing. In the further cases of Charcot, Moebius, Deliarde, Wiener, Cohen and Mannheim, Timotheef and Bernhardt, the Basedow antedated the tabes, but it is to be remembered in this connection that the Basedow symptoms are usually first noticed by the patient, incipient tabes being then found on examination.

It is to be noted that in all these cases the specific infection occurred years ago, with the Basedow in all cases years after the infection, appearing in practically all cases shortly before, at the same time with, or shortly after, the symptoms of tabes.

There is not a single case reported, in fact, where the Basedow antedated the specific infection and where in that case tabes-Basedow were found coexistent later, although in several cases struma had existed for years. In my own

cases, Case 1 presented tabetic symptoms antedating the appearance of exophthalmus by 18 years, Case 2 tabetic symptoms antedating those of Basedow by 5 years, Case 3 had suffered from Basedow for 2-3 months previous to examination and at that time presented marked tabetic signs. Without question these have existed for a longer period. Case 4 states having noticed loss of feeling in the distribution of the ulnar nerve 12-15 years ago, exophthalmus since 8 years. Case 5 had had paralysis of the third nerve 6 years ago and had noted symptoms of Basedow in the last few months only. Case 6 had had diplopia a year ago and had noticed exophthalmus with loss of weight since 4 months. Case 7 had noticed the exophthalmus 2 years ago and was found to have objective marks of tabes, whose beginning must certainly be traced as far back as that. Case 8 had well marked optic atrophy, had had diplopia 6 years ago, had had gastric crises 3 years ago; her Basedow symptoms are of only a few months' duration.

These cases form almost a "type picture" and lead to a consideration of the possible relationship existing when the diseases are found in the above manner. Do they exist simply and solely as a chance happening? I think this may be dismissed in view of facts already stated, as extremely improbable. Has one led to the appearance of the other, directly or by an intermediate process? If so, which has favored the development of the other? Have we finally a type of luetic manifestation sui generis?

As to the second question: Curshman has recently reported in two tabetics intermitting symptomatic Basedow occurring with other paroxysmal appearances on the part of the vegetative nervous system, in conjunction with gastric crises and hypertension of blood pressure, the appearance of all the cardinal symptoms of Basedow's disease. V. Malaise has also reported two cases from Marie's clinic. In the opinion of these authors we are dealing with an affection of the sympathetic and have a condition analogous to disturbances of other organs, such as the stomach, depending on disturbed equlibrium of the vegetative nervous system. Curshman believes that we are dealing with a primary tabetic lesion of the cervical sympathetic, which, when it oversteps certain bounds, leads to a swelling and hyper-secretion of the thyroid (in the sense of Abadie, Jannescu and others), which again leads to the thyreotoxic symptom complex of Basedow's disease. Bauer, in a discussion of Curshman's cases speaks of them directly as "thyroid gland crises" appearing as the result of intermittent disturbance of the gland enervation. That the Basedow in these cases in any way favored the appearance of the tabes can be ruled out. None of the cases reported had Basedow extending over many years or appearing occasionally, nor has it ever been proven that any intercurrent disease, acute or chronic, favors the appearance of tabes in a syphilitic, though chronic poisoning, such as with alcohol and nicotine, does seem to act as a factor. While the incident of tuberculous lesions of the lung or lymph-glands is a very high one in the autopsy records on cases of tabes or paralysis (Klippel, Anglade, Calmeil, Seglas, Regis, Goldstein, Marmieres, v. Lucas, Tatusesco and Heilbronner) it seems to me, in consideration of the fact that both tuberculosis and syphilis are so ubiquitous, and that autopsies are more general on tabetics and paralytics as a class, than on any other, most of them dying in state asylums or hospitals, etc., that the coincidence cannot be used in the sense in which Stern attempts to, namely, that there exists a certain bodily habitus peculiar to the majority of tubercular and tabetic patients, and that a coincidence of bodily disposition a priori exists, which renders individuals of this habitus more likely to become tabetics if lues be acquired.

To be considered more seriously in the sense of Stern as expressed by him in "Über körperliche Kennzeichen der Disposition zur Tabes" are his observations on the coincidence of tabes and Basedow's disease.

For the appearance of tabes or general paralysis Stern declares the following triad of factors to be necessary: The "dispositio paralyticans," the luetic infection, and the patho-function of certain glandular organs of internal secretion. He has divided metaluetics into two main groups: that of a tall, rather asthenic type, of weak musculature and sparse hair growth, and into that of a broad-shouldered, muscular, rather hairy individuals. These groups merge into each other in subdivisions: that of the asthenic akromegaloid, the asthenic hairy, the asthenic rhachitic medium height, the muscular broad type, the adipose and muscular adipose type, etc. In these groups he believes to have found certain signs which show that in one group one internal secretory process has suffered derangement of function, or has always over- or underfunctionated, in another group another. For us his remarks anent the disposition to overactivity of the thyroid in one class are of interest. This is the asthenic type; longlegged and of sparely developed secondary sexual characteristics, according to the views of Tandler, Holmgreen and Stern, the result of an overactivity of hypophysis and thyroid gland. Stern believes that this group of tabetics has been subject to a relative hyperthyroidism during years of involution, and as just this group is the one representing the greatest number of tabetics, and as just in this group are mainly found, according to Stern, the combination of tabetic symptoms with those of Basedow, comes to the conclusion that in the development of tabes, as regards this group at least, hyperthyroidism plays a leading rôle.

As opposed to this class, in this regard, stands that of the group of short, muscular, hairy individuals. Here Stern finds no sign or few of hyperthyroidism. In this group fall most of the cases of optic atrophy, cases which in them-

selves are to be differentiated from the asthenic group, in that their tabes is of a relatively mild sort, both as regards subjective symptoms and ataxia. This has also been the course of the cases showing akromegaloid type and tabes, and of this whole class of short, sturdy, hairy individuals, Stern rather believes in a hypophyseal disturbance of function as a leading factor in the development of tabes.

My cases would, according to the hypotheses of Stern then, be explained as tabes developing after a primary luetic infection in individuals suffering from hyperthyroidism. This may not have evidenced itself actively, except in so far as its influence in forming the asthenic group was concerned, until the time of the appearance of tabetic symptoms. In the two of my cases taking iodides, the appearance of hyperthyroidism might then be conceived of as a formerly latent process being activated. Goldflams, Roux, Clark, Pineles, Krehl, have all seen Basedow appear with iodides in tabes incipiens.

In an effort to group my cases according to the formula of Stern, I find that they fall naturally into two divisions; four of them to be classed among the asthenic, four among the broad-shouldered, muscular group. All, however, showed equally the symptoms of hyperthyroidism. It is also true that the three cases of optic atrophy were in the second group. It may not be out of place here to mention that tabetic optic atrophy is found more especially among well developed robust, rather stocky individuals. Four of my cases are women, four men. In the cases collected by Sattler the ratio of women to men stands at about six to one. About 15 women acquire Basedow to one man. This relationship holds in about inverse order as regards tabes. The preponderance of women in the combination of Basedow and tabes might be explained by their greater susceptibility to thyreo-toxic influences, predisposing to development of tabes in a luetic. The total number of cases, however, is too small to permit of any definite conclusions. This can also be said as regards the conclusions drawn by Stern. While his views are interesting, it will need the observation of many more cases before a definite conclusion as regards the importance of his grouping of tabetics can be made, especially as regards the value of them in reference to prognosis and therapeutics.

Two of my cases had been using iodides. Goldflams and others have reported cases of tabes in which Basedow appeared during a course of intensive iodide administration.

One point of clinical importance, therefore, I believe is worth considering in regard to these cases as a group. In tabetic individuals of an asthenic type,—long-legged, tall, meagre, nervous—especially, if they show any mark of hyperthyroidism,—tachycardia, hyperidrosis, glycosuria, dermographism, increased salivary or lachrymal gland secretion, I believe iodides, because of the possibility of Basedow developing in just this class, to be contraindicated.

A definite conclusion as to the course and factors predisposing to the development of the type-picture, cannot, I believe, be made at present. We know that only about 3½% of all syphilitics develop the so-called "meta-luetic" lesions. Explanations of this fact differ and none of them and no combination of them entirely cover the ground. Erb's school maintains that spirochetes are of various sorts, one kind producing a relatively mild lues often followed by "meta-luetic" developments, while infection by another variety may not cause late syphilitic effects. This view is supported by the experiments of Spielmeyer, who succeeded in growing trypanosomes, killing dogs in from six to eight weeks. In cultures from these animals there was obtained a variety which inoculated into dogs produced typical tabetic symptoms; the cultures obtained from these animals produced in the next series of dogs, the effects of the first inoculation, death in from six to eight weeks. It has hence been experimentally shown that trypanosomes can be so influenced as to alternately produce different types of disease.

The other widely held view is that of the importance of the special bodily constitution of the individual, "meta-lues" being the result of a syphilitic affection in a person so constituted. Chvostek especially has pointed out that an individual's constitution is the product of the relationship of his internal secretory activities. It is very possible that through certain changes in increase or decrease of internal secretion a specific reaction to the virus of a certain disease may be called forth; in this manner the varying reactions as regards the luetic virus could be explained, and the occurrence of Basedow's disease concomitant with tabes in certain cases, becomes more intelligible.

The factor of the primary toxicity of the spirochete,—of its tabes developing potential in the sense of Erb,—may play a part. Stern's constitutional moments certainly do, and the possibility of direct tabetic lesions of the cervical sympathetic in certain cases (though this would not account for the entire picture of Basedow's disease) cannot be denied. That the two diseases do interact and in doing so bear a causal relation to each other as also that the combination is not as infrequent and of much greater importance than has been supposed, are facts which may, I believe, be accepted as established.

It is a pleasant duty to thank Hofrat Fuchs for his permission to report these cases as also to acknowledge my thanks to Hofrat Fuchs and to Professor Marburg for advice and criticism.

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OBSERVATIONS ON STERILITY IN THE MALE.*

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THE object of this communication is twofold. First, I wish to point out that in the event of a childless marriage the finger of suspicion points at the woman with shocking frequency. It is almost a reflex act on the part of the physician, to say nothing of the husband. The fault is hers, and even in the absence of some definite abnormality of her genitalia, she falls a ready prey to curette, dilator, or glass plug. Second, I wish to consider, in a general way, the sterile man, and to discuss some of the causes of his sterility.

There seem to be no very accurate figures as to the frequency of childless marriages. According to Huhner (Sterility in the Male and Female, Rebman, New York, 1913), 10% of all unions are sterile. In France the number is put at 20%. But in a general and impersonal investigation of statistics on this point one must not forget that the clandestine, but admittedly widespread use of the many methods for the prevention of conception is a factor of unknown, but immense importance.

Therefore all the material upon which we must base our figures consists only of those comparatively few couples who, anxious to have children, come to the hospital or to the physician's office. Even in such cases there is no general agreement as to the number of times in which the husband is at fault. Hunter (*American Journal of Surgery*, April, 1912) quotes numerous writers whose percentages vary from 1 to 80. Lier and Ascher (cited by Scholtz, *Arch. f. Dermatologie u. Syphilis*, 1910, 101) found the fault to lie with the husband in 71% of the sterile marriages which they investigated. Huhner, in 129 couples, found this figure to be 59%. Kehrer's 40 cases (Huhner, *loc. cit.*) indicted the husband in 35%. S. W. Gross (Huhner, *loc. cit.*) in 192 cases from various authors, found the husband responsible in 17%. Vedder (Huhner, *loc. cit.*), examining 50 husbands, found them sterile in 70%.

In view of these facts it might be supposed that a community such as ours, would proceed with caution under such circumstances. As Belfield (*Journal American Medical Association*, 1912, lix, 1419) aptly says:

"The investigation of childlessness should begin, not with the curettage of the wife, but with the microscopic examination of the husband's semen."

But the facts show the contrary to be true. From one of our largest public hospitals I have collected data of 108 women, in whom a diagnosis of sterility is recorded. Some of these women had been married many years. Three had been married more than once. In justice to the male sex, and to the particular individuals here involved, these patients are not to be included in our statistics.

In 31 cases the records do not contain any statement as to advice or treatment either of the wife or of the husband. Of the remaining 74, 37 were advised to undergo operative treatment, while the remaining 37 actually went through this ordeal. In many this advice was given or an operation performed in the presence of a negative pelvic examination. In only 5 of these 105 women (4.76%) was the husband first examined!

If these operative procedures had led to the much desired pregnancy we might feel somewhat justified. But failure is written in large type over the results. Twenty-five of the women operated upon were followed for a year or more. Only 2, or 6%, had become pregnant or borne children. An attempt to examine the husbands of the remaining 23 cases met with poor success. He rarely can be approached, and

* Read at a meeting of the Obstetrical Society of Boston, December 23, 1913.

even when found to be sterile, usually as a result of his own indiscretions, he shrinks from the comparatively simple procedures which might result happily. However, 4 such husbands were examined. Two were evidently normal in every respect. In the other 2 the semen contained no spermatozoa, and an examination of their genitalia showed evidence of an old gonorrheal infection. One of these men had been married twice, neither wife had ever become pregnant, the present incumbent had gone through two fairly serious operations, yet the husband's powers of procreation had clearly become obsolete years before.

Bearing in mind the figures already given as to the frequency of the sterile husband, it is fair to assume a similar percentage in the cases here presented.

One might suppose that in hospital practice the pressure of work furnished an excuse for an inexcusable blunder; one might further suppose that this does not apply to our private cases. Unfortunately it does. Through the courtesy of several gynecologists, I have now seen the husbands in 40 childless marriages. Twenty were actually sterile. Yet the wives of 4 (20%) of these had had more or less severe operations done upon them before it occurred to the operator that perhaps, after all, the husband was at fault.

While these figures are small, we believe them to be representative, not only of this community, but elsewhere. When it is remembered that a man is so often sterile as a result of his own ignorance, and that the innocent wife very frequently falls a victim, should we not be more careful as to where the blame is placed?

Now as to the causes of sterility in the male. While in women nature seems to be responsible in many cases, in man disease plays the chief rôle. In the event of bilateral undescended testicles Belfield (*loc. cit.*) says that no spermatozoa are formed. On the other hand, Simmons and Odiorne (*Annals of Surgery*, December, 1904) and more recently, McGlannan (*Journal American Medical Association*, February 28, 1914) have observed adult spermatozoa and a normal histologic picture in a considerable number of such organs.

In the rare malformations, such as epispadias, certain types of hypospadias, and exstrophy of the bladder, the spermatogenetic function of the testicle may be and generally is unimpaired, but owing to the nature of the defect, coitus is either impossible, or the semen cannot be ejaculated into the vagina.

There are several non-venereal diseases, which, if they attack the testicle or epididymis, may produce sterility in the male. Of these mumps, especially when occurring after puberty, is the most common, with an incidence of orchitis, generally bilateral, estimated at anywhere from 5% (Keyes Genito-Urinary Diseases, 1911) to nearly 33% (Comby, Osler's Modern Medicine). Atrophy of the testis with destruction of its spermatogenetic function follows in a vast majority of these cases.

When we consider that approximately 15% of the adult male population is infected with syphilis and that this may involve the testicle we are at once confronted with another cause of sterility. Syphilis (gumma) of the testicle is fortunately not common, and is generally unilateral. Keyes (*loc. cit.*) records 67 cases, of which only 10 were bilateral. But even if bilateral, the prognosis, after proper anti-syphilitic treatment, is said to be good. Those portions of the testicle which are not sclerosed may functionate and secrete spermatozoa. Gosselin (quoted by Watson and Cunningham) has found spermatozoa in the semen after the cure of this condition. That a restoration to, or a continuance of fertility under these conditions is of doubtful value to the community or to posterity seems to be clear.

The incidence of abscess of the testicle (usually unilateral) in typhoid is only about 2%. The destruction of the organ may be, and usually is, complete.

Tuberculosis of the genital tract, although primary in the epididymis, and even when unilateral, results in azoospermia in about 85%. This catastrophe is to be explained in part by an occlusion of the genital ducts through early involvement of vas deferens, prostate and seminal vesicles. The prognosis is bad, for a considerable experience has shown that, even if early operation removes the diseased epididymis, its fellow becomes involved within a year in more than half the cases.

The abuse of alcohol is also a potent factor in the production of sterility. Simmonds (Keyes, *loc. cit.*) estimates that 61% of all alcoholics are sterile. But in such a condition of narcotism is it not reasonable to suppose that concomitant diseases, generally those of venereal origin, are far more productive of the sterility than is alcohol? Also may not such a loss of the procreative function be desirable under the conditions? Certain experimental evidence, at least, would seem to bear out this conclusion.

Another possible cause of sterility which does not seem to be mentioned elsewhere, is absolute and protracted continence. This statement, made to me by a colleague, is based on the case of a man who was married fifteen years ago. At this time healthy spermatozoa were found in the semen. For reasons best known to themselves the couple have abstained from sexual relations, and there have been no intercurrent diseases. A recent examination of the husband shows azoospermia.

It also seems to be a fact that the otherwise healthy testes of normal, active and sexually vigorous men may occasionally be entirely unproductive of spermatozoa. I have recently been told of such a case occurring in the practise of one of my colleagues, and both Belfield (*loc. cit.*) and Janet (L'Assoc. Franc. d'Urol., 1909, xiii) mention similar examples. The possibility in

such cases of a congenital atresia of the spermatic ducts is not to be disregarded.

Another source of sterility of considerable importance is repeated and prolonged exposure (especially of the genitals) to the Roentgen ray. Those affected therefore, are physicians, x-ray workers, and patients to whom this has been prescribed as a therapeutic measure for other conditions. Brown and Osgood (Trans. American Association Genito-urinary Surgeons, 1907) carefully investigated this question and found, among other things, that (1) spermatozoa themselves are highly resistant to the x-ray, (2) the spermatogenetic cells of the tubules of the testis show degenerative changes, (3) there is no deterioration of sexual activity produced. These investigators also found that in a very small percentage of cases fertility may return after removal of the offending cause.

Infection by the gonococcus is by all odds the most frequent cause of male sterility. From a numerical standpoint all other etiological factors fade into insignificance. The disease is so widespread that statistics collected from various sources place the incidence at from 50 to 75% of the adult male population. It is also well established that prostatitis, generally with more or less involvement of the seminal vesicles, occurs in the vast majority of cases.

The involvement of these organs may result in sterility, a point on which there seems to be general agreement. If the site or severity of the inflammatory process is such as to disturb the patency of the ejaculatory ducts, there will be either azoospermia or oligospermia, depending upon the degree of closure of these structures. When one considers the small calibre of these ducts, their proximity one to the other, and the relation of their orifices to the prostatic urethra, where the inflammatory process is at its height, such an outcome is not to be wondered at. On the other hand, one might well ask why sterility from this cause does not occur with greater frequency. But the procreative capacity of the husband is done away with in prostatitis in another way as well. In such cases there is frequently found asthenospermia, the semen containing a few weakly motile or abnormally shaped spermatozoa, or necrospermia, where these bodies are absolutely motionless, tightly curled on themselves and abnormal in size or shape. These changes are to be accounted for by an alteration in the reaction or composition of the prostatic or vesicular secretion. Just what this change is, or in which organ (prostate or vesicles) it arises, we do not know. But we do know that spermatozoa are killed or inhibited in an acid medium, while they thrive in an alkaline medium. It is probable that in addition to other chemical changes there is sufficient combined or free acid in the secretion of these glands to deprive the spermatozoa of their vitality. Further knowledge, based on scientific, rather than on empirical principles, is much needed before we can discuss this point intelligently.

A fourth complication of gonorrhea following close upon the heels of prostatitis is epididymitis. Its incidence is considerable, Finger (Blenorrhea of the Sexual Organs and Its Complications, Trans. 3rd ed. 1894) reporting 29% in 1844 cases of gonorrhea. While involvement of one side (usually the left) is the rule, the opposite side becomes affected in no small number. In the latter event the percentage of sterility (azoospermia) is exceedingly high. Finger collected 242 such cases from different authors and found azoospermia in 92%. The figures of other authorities, while not so high, give us reason to regard the incidence of sterility in men so affected as 75 or 80%. This unfortunate result is due to occlusion of the genital duct, usually at the lower pole of the epididymis, but often at other points as well. While such a condition would appear to be hopeless, the ingenious operation devised by Martin, of anastomosing the vas deferens to an uninvolved portion of the epididymis, has resulted happily in a large number of cases.

But unilateral epididymitis is not without its drawbacks. Emödi in 31 cases found azoospermia in 9, and the investigations of Benzler (*Arch. f. Derm. u. Syph.*, 1898, xlv) are significant. The latter followed the subsequent history of German soldiers who had had gonorrhea, and who had been married three or more years. Of those without epididymitis 10.5% were childless. Where there had been unilateral epididymitis the percentage rose to 23.4%, while in the bilateral cases sterility obtained in 41.7%. Azoospermia in unilateral epididymitis is to be explained, not alone by a blocking of the genital duct on the opposite side, probably at the prostatic orifice, and without clinical evidence of its occurrence, but also by the prostatitis and vesiculitis which accompanies it.

Finally, gonorrhea may result in sterility by the production of a stricture of the urethra. When its calibre is so decreased as to prevent the free ejaculation of semen into the vagina the results are not difficult to explain. Also it must not be forgotten that behind every stricture there is a more or less well marked prostatitis, and we have seen that this in itself is capable of producing sterility.

I wish now to consider briefly my own experience with sterility in the male, of which, as already stated, I have seen 20 cases. The semen of 10 contained no spermatozoa after one or more examinations One was a case of tuberculosis of the epididymis (unilateral), upon whom I finally operated, but whose initial symptoms had appeared eight years previously; one gave a history of some obscure scrotal swelling (probably mumps) years previously, and with marked atrophy of both testes; in a third, gonorrheal prostatitis and vesiculitis of long duration, and with numerous exacerbations, together with a pronounced atrophy of each testicle of

undetermined cause, was responsible for the condition. In the other 7, bilateral epididymitis of gonorrheal origin was to blame. In all there was also found a well defined prostatitis, the secretion containing much pus.

Six of my cases were found to have oligo- or necrospermia, or both. In 4 of the 6 there was a purulent prostatitis, one associated with an old bilateral epididymitis. The latter, occurring in a middle aged man, in whom no objective or subjective evidence of gonorrhea was found, was undoubtedly due to infection with the colon bacillus, a not infrequent occurrence. The other 3 had been produced by the gonococcus.

The semen of the 2 remaining cases contained only a few immobile and abnormally shaped spermatozoa. Careful examination and inquiry revealed no cause for the condition.

Four more of my series showed a peculiar intermittency in the presence of spermatozoa. None of them had been able to procreate even after years of marriage, and with wives pronounced normal by one of our most eminent gynecologists. At the first, second, and in one or two, the third examination of the semen, no spermatozoa, living or dead, were to be found. On the next occasion the specimen was swarming with myriads of them. Still later, spermatozoa were conspicuous by their complete absence.

One of these was a pronounced alcoholic, but young, and otherwise apparently normal. It seems likely that John Barleycorn furnished the answer.

In another there was a large left varicocele, with marked atrophy of the corresponding testicle.

In the third nothing could be found but a slight degree of prostatitis. In this case the first specimen of semen was sterile, and the second normal.

Lastly, a man with a small spermatocele and a generally cystic feel to the epididymis on the right side. The first sample of semen showed one or two dead spermatozoa. A week later it contained absolutely none. Two weeks later a similarly negative report was given me by Dr. E. L. Keyes, Jr., of New York, to whom I had referred the case. At the end of another week the news came to me that countless active and normally shaped spermatozoa had been found.

Finally, it is of interest that of the four private cases whose wives had already been operated upon, only one was found to produce spermatozoa. In two of the others a bilateral gonorrheal epididymitis excluded all possibility of procreation without previous operation. In the fourth the testicles had been put hopelessly and forever *hors de combat* by an attack of mumps in early manhood.

In closing, it seems worth while to state briefly the method which I have found to be efficient in the examination of such men. A careful history, with special reference to the causes of sterility already mentioned will often give the clue at once. The man's sexual life should also be inquired into. Physical examination involves a rigid routine. The external genitalia are first carefully examined, especially epididymes and testes. Urethral discharge is looked for. The anterior urethra is irrigated with boric acid solution. The patient then urinates in two glasses, that in the first glass showing the condition of his posterior urethra. The urethra is calibrated for stricture. The bladder is filled with boric solution and a rectal examination made to determine the condition of prostate and vesicles. These organs are then gently but firmly massaged. In most cases this serves to express enough secretion to drip from the meatus. Two drops of this are placed on separate slides, one being examined at once for spermatozoa. If numerous and active, the hand of suspicion must then point elsewhere. To the second specimen is added a drop of acetic acid (36%). This is examined for its cell contents, and here the nuclei are so well stained by the acetic acid that one has no difficulty in distinguishing pus from round cells. The presence of pus indicates a prostatitis of greater or less severity. The absence of spermatozoa, however, does not indicate sterility. In the latter event the man is instructed to have intercourse wearing a condom of the thin membrane variety ("beaters skin"). After ejaculation he is instructed to remove this gently from the penis and to place it at once in a wide-mouthed bottle of warm water, keeping its contents from spilling by jamming the open end of the condom between the cork and the bottle. This should be examined at the earliest possible moment after ejaculation, meantime keeping it warm to insure the vitality of the spermatozoa. While haste is advisable, if instructions are carried out, I have found spermatozoa of great activity as long as ten hours after intercourse. If the first specimen is negative, ask for another, and even a third, but be sure that several days or a week of sexual abstinence elapse between. I regard three specimens as the least on which to safely base an opinion.

It will be seen that I have dwelt in this paper upon three points. First, the prevalence of sterile marriage, and the unjust and often unwarranted indictment of the wife; second, the main causes of male sterility have been discussed, and it has been shown that in a great majority of cases venereal disease is the underlying factor; and third, the method of determining the presence or absence of sterility in the male. A fourth point, one of vital importance, dealing with the prognosis and results of treatment in the various conditions enumerated, has been intentionally omitted. It is our purpose to deal with this at greater length in a subsequent communication.

This experience, although brief, is not without its lessons.

1. The cause of sterility in man is due to venereal disease (generally gonorrhea), in the vast majority of cases.

2. Oligospermia or azoöpermia may occur without obvious cause.

3. The production or ejaculation of spermatozoa may be intermittent for reasons as yet unknown.

4. A single examination of the semen is insufficient. At least two, perhaps three or four specimens, each taken after a considerable period of sexual continence, must be seen, before a prognosis can safely be given.

5. Marriage may continue to be sterile even with the finding of active spermatozoa in the husband, and a normal genital tract in the wife. Experience has shown us all that for some reason best known to herself, Nature delays procreation often for years.

6. It is noteworthy that in no case of male sterility regardless of the cause, is masculinity in the least impaired. This is to be explained by the fact that even though the spermatogenetic function of the testicles is inhibited, the internal secretion continues in full force.

STATISTICAL NOTES ON A SERIES OF 6000 WASSERMANN TESTS FOR SYPHILIS PERFORMED IN THE HARVARD NEUROPATHOLOGICAL TESTING LABORATORY, 1913.

BY E. E. SOUTHARD, M.D., BOSTON,

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THE value of the present series of Wassermann tests is enhanced by the interest which the laboratory officers have taken in the clinical diagnoses of the cases tested and by the courtesy with which the clinicians submitting specimens have given important data.

Since the Harvard Neuropathological Testing Laboratory is not a commercial institution and has performed much charity work in addition to its other work (paid for virtually at cost), a spirit of cooperation has grown up which has helped in the solution of many problems of individual diagnoses.

The Testing Laboratory, of which the last year of work is here summarized, was, I believe, the first to be established in Massachusetts to make use of the ingenious discovery of Wassermann, and, since it has been in continuous action under its various heads, (1) Professor F. P. Gay (now of the University of California) who established the standards since maintained, (2) the late Dr. Emma W. D. Mooers, who brought to the work a great interest in both the technique and the clinical significance of the tests, derived from her work with Plaut in Munich, (3) Professor W. P. Lucas, (now of the University of California) who turned his attention to numerous clinical problems, not only of children, but in general, and (4) their successors (see below), the Laboratory has had a very varied experience and has sustained most of the shocks which the numerous pitfalls of the test provide. The result has been an increasing confidence in the tests as made, and fewer and fewer complaints of lack of congruence between the results of the tests and clinical findings, especially when these latter are reviewed.

My own interest in the tests was in the first instance psychiatric and neuropathological, and I believe that the laboratory would hardly have survived, had it not been for the interest in these tests taken by the state institutions for the insane. The work published heretofore, based on this laboratory's tests, has been largely psychiatric, as the following titles illustrate:

Lucas, W. P. The Wassermann Reaction in its Application to Medicine. BOSTON MEDICAL AND SURGICAL JOURNAL, clxix, 1913, No. 4, pp. 116-121, July 24, 1913.

Paine, H. L. Results of the Wassermann Test in Two Hundred Consecutive Admissions to the Danvers State Hospital. BOSTON MEDICAL AND SURGICAL JOURNAL, clxviii, No. 14, pp. 501-503, April 3, 1913.

Morse, M. E. Correlations of Cerebrospinal Fluid Examinations with Psychiatric Diagnoses: A study of 140 Cases. BOSTON MEDICAL AND SURGICAL JOURNAL (in press) Worcester State Hospital Contributions No. 20, 1914.1.

I believe the value of the Wassermann reaction will always remain even more critical in the neurological arts than in those of the syphilographer who has so many more clinical data immediately accessible to him. It is to be hoped that some state agency will take over the entire task of Wassermann-testing on a scale commensurate with its value. If so, it is the experience of the present Laboratory, which has been virtually supported by cooperation of several of the larger hospitals for the insane, that psychiatric and neurological cases will absorb the lion's share of attention, although from time to time many series of sera will be submitted by physicians having special therapeutic tests (salvarsan, neosalvarsan) in hand.

There are Wassermann tests and Wassermann tests! In comparing our results with others, we often find tests described as Wassermann tests which are somewhat essentially different therefrom. Needless to say some workers omit various precautions and controls which are essential to reliable work. To make clear the policy of this laboratory, which has been managed in common by the writer, by Professor H. M. Adler, and by Dr. Annie E. Taft under the Department of Diseases of the Nervous System of the Harvard Medical School, I propose to set down (without description) the steps, precautions, and controls used in the series of tests, which are now being executed by Dr. W. A. Hinton.

(A.) *Materials*:

(1) washed sheep corpuscles, 5% suspension, 5 c.c. to tube.

(2) antisheep amboceptor, 2 units.

(3) complement (guinea-pig serum, 10%), 2 units.

(4) patient's serum inactivated at 56,° 0.1 c.c. with each antigen.

(5) antigens (a) human heart reinforced with cholesterin (0.1 c.c.)

(b) human heart reinforced with cholesterin (0.05 c.c.)

(c) alcoholic extract of syphilitic fetal liver (0.25 c.c.)

(B.) *Controls*:

(1) antisheep amboceptor unit tested daily.

(2) Compliment unit tested daily.

(3) 0.2 c.c. inactivated patient's serum used in addition to test with 0.1 c.c.

(4) each specimen tested with three antigens.

(5) control to exclude the (rare) occurrence of natural hemolytic power in complement.

(6) same hemolytic power in amboceptor.

(7) same, salt solution.

(8) control sera six in number (strong positive, slight positive, negative; each antigen doubled in amount.)

(C.) *Remarks*:

(1) period for fixing complements, 1 hour.

(2) doubtful cases repeated with double amount of serum and appropriate controls.

(3) cerebrospinal fluids used in five times the amount of sera.

(4) attention may be called to the "slight positive control (v. B., 8 above) which prevents many slightly positive cases from being overlooked on a given day.

(5) attention is especially called to the use of *three* antigens (This is not usual in many American laboratories), excluding technical error, perhaps indicating slight quantitative changes in a given patient's reaction, and excluding certain false positions.

(6) supervision and control, (highly important where so important a diagnosis as syphilis is being rendered) are obtained by the direct contact of (a) secretary, (b) technician, (c) laboratory boy, in addition to medical expert diagnostician (during 1913, Dr. W. A. Hinton) under general direction of Dr. Annie E. Taft, Custodian, Neuropathological Laboratory, Department of Neuropathology.

GENERAL STATISTICS.

Total Wassermann tests, 1913		6139
Blood sera	5282	
Cerebrospinal Fluids	857	
Total tests repeated		228
Blood sera	186	
Cerebrospinal Fluid	42	
Total individual blood sera		5096
Cerebrospinal Fluids	815	

An important question is always raised by tests which have to be classed as doubtful in result. These doubtful tests occupy a large share of attention and inspire requests for new specimens. I was surprised to learn the low percentage of such doubtful results when all the tests were summed up. The percentage (2-4%) is somewhat like what might be expected of a biological test. The fact that there are more such doubtful tests in sera than in cerebrospinal fluids signifies doubtless the larger number of confusing substances in the blood as well as other technical difficulties. The figures follow:

Total blood sera	5282
"Doubtful" results (4%)	202
Total cerebrospinal fluid	857
"Doubtful" results (2%)	19

It may be properly inquired what is the result of repeated tests in connection with these "doubtful" cases. The following table demonstrates cases in which a change in result was registered involving "doubtful" tests in sera:

"Doubtful" became negative	17
Negatives became "doubtful"	4
"Doubtfuls" became positive	2
Positives became "doubtful"	5

This table would incline one on statisical grounds to prefer to call "doubtfuls" negative. Suppose we look at a group of non-"doubtful" cases to see how they turn with repeated tests.

Negative cases become positive (of which 3 had also been postive also before the initial negative and one had been "doubtful.)"	15
Positive cases become negative (of which three became positive again later and one had been negative before the initial positive.)	33

If we leave out the anomalous examples of one dissimilar test in a triad, we arrive at

Negative cases become positive	11
Positive cases become negative	29

Comparing this with data above:

"Doubtfuls" become positive	2
"Doubtfuls" become negative	17

we see that, statistically at least, "doubtfuls" resemble negatives more than positives. This also confirms the qualitative suspicions of many workers. Nevertheless it must be pointed out that this general trend toward negative is partly due to natural immunizing or spirochaete-destroying factors at work in the individual and partly to therapeutic efforts.

The figures with respect to "doubtfuls" and changes of reaction in cerebrospinal fluid are as yet too small to make tabulation profitable.

If we exclude "doubtful" tests and limit consideration to the positive and negative tests alone, we have the following denominators:

Blood sera	5096
Cerebrospinal fluids	815

Concerning these blood sera in our laboratory it is not at all certain that they represent the community fairly; indeed it is highly probable that they are a picked class of sera derived from patients in whom syphilis was seriously suspected.

Positive blood sera (23%)	1161

And it is certain that the cerebrospinal fluids are a still more highly selected class

Positive cerebrospinal fluids (33%)	267

It is an interesting speculation to consider how far this 33% of positive cerebrospinal fluids represents the chance that an "organic" disease of the nervous system has of being syphilitic.

From the community's point of view it is clear that the percentage of outstanding syphilis is not so high as alarmists have sometimes thought. It is probable from such data as these that the percentage of syphilis in the community is far below 23%.

A curious fact is illustrated by the figures from the Worcester State Asylum, a transfer institution for chronic patients. This institution harbors syphilitics (3 in 103) not quite to the extent of 3% (2.9%.) Here is a community from which the luetic organic cases have largely never been sent. The chances are that this percentage is lower than that of the community at large.

On the other hand, if we consider the girls of the Massachusetts Reformatory for Women, we find the extraordinary percentage of 44, that is, 112 positives in 254 cases.

Some facts concerning the Psychopathic Hospital data were worked up more particularly for the benefit of the White Slave Commission, and the following paragraphs are reproduced from a report to Dr. Walter E. Fernald, Chairman of that commission.

"I. The general average for the whole state of cases thought by the hospital physicians to be due to syphilis is 5.49% for the three years 1910-1912, and 6.28% for the year 1912 itself. This figure can be safely stated to be far too low because the average percentage of general paresis during the same three years (1910-1912) was 8.43% (for 1912, 8.65%.) This latter figure is also beyond question too small since a certain proportion of coarse brain lesions of epileptic insanities and of imbecilities are undoubtedly due to syphilis, although they are classified outside the syphilis group in the figure presented by the Board of Insanity from which I make the above extracts.

"II. The best information available to me as to the general percentage of syphilis to be found in mental cases is that afforded by our experience at the Psychopathic Hospital covering 1671 separate random tests on different persons. 264 of these 1671 persons were determined to show syphilis so far as the Wassermann reaction carried out under the precepts of the original method can be trusted. I consider that there is no better set of data available for Massachusetts. This will be found to work out a percentage of 14.7% for our Psychopathic Hospital intake. I think our Psychopathic Hospital intake may be regarded as more representative of the general population than any admissions in previous years to other insane hospitals. An indication of this for example, is the fact that we discharged 250 persons during the last year alone as "Not Insane" although every one of these cases presented some kind of mental problem. It is rather curious that the percentages which we here work out, viz., approximately 15%, correspond to the idea prevalent I believe among dermatologists as to the general percentage in the community which they deduced from cases resorting to skin clinics.

"III. In a series of random "organic" cases 321 in number, I found cerebrospinal fluids positive in 118 cases or about 37%. You will of course wonder how I determine cases to be "organic." My general policy has been to have examination of the blood serum made in all cases having severe mental symptoms. If the serum is positive, I proceed as a rule to an examination of the cerebrospinal fluid by the Wassermann and other methods, believing it to be of importance to determine whether a case is one of General Paresis or of some other form of cerebrospinal syphilis. In case the serum is negative but the patient shows signs of disorder in the projection system, or as we say, looks "organic," then I proceed to a cerebrospinal fluid examination, despite the negativity of the serum. It is from these two groups that my random organic series of 321 cases is made up."

Following is not intended as a complete account of the Wassermann technique but only to record the particular materials and main steps used in this laboratory in 1913, so that it may be known exactly what we mean by "Wassermann" tests.

SUMMARY.

1. On account of the varying standards and criteria which have held or will in future hold in the matter of Wassermann tests for syphilis, it has been thought wise to summarize the materials, controls, and special precautions used in the Harvard Testing Laboratory.

2. General doubts are often raised as to the reliability of Wassermann's test on account of the "great number" of "doubtful" reactions; this "great number" resolves in our large series to 4% of the blood sera and 2% of the cerebrospinal fluids.

3. On statistical grounds we find the "doubtfuls" resolve much more frequently into "negatives" than into "positives."

4. 23% of all sera examined were positive, and since the cases are in many instances picked as likely to be positive, this percentage is doubtless much higher than the community's total percentage.

5. 33% of all cerebrospinal fluids examined were positive. The principle of selection of these cases was such (positive serum or symptoms of "organic" nervous or mental disease) that the result is of practical value, stateable as follows: The chances of a syphilitic origin for a case of "organic-looking" nervous or mental disease are not more than one in three.

6. The Massachusetts Reformatory for Women yields 44%, a partial index of the infected nature, though not necessarily of the infectivity, of prostitutes and other delinquent women.

7. The Danvers State Hospital (for the insane) yields between 19 and 22% positive sera in its routine intake of cases from Essex County.

8. The Worcester Asylum, a transfer institution (to which are transferred chiefly *non*-paretic cases), yield less than 3% positive. If this percentage should be maintained in future work, one might infer that, from the group of persons in the community with insane tendencies and infected by syphilis, cases are drained off into the frankly paretic group, in such wise that a population of asylum *transfers* will be likely to show a *low* syphilis index. But this conclusion can be only tentative on account of many other issues.

9. The Psychopathic Hospital index (15%) is perhaps somewhat closer to the general community index than the others just mentioned on account of the large number of cases "not insane" that are tested, but it is evident that 15% would be too high an index to assign to the syphilis of the general population.

10. Aside from its capacity to solve problems of individual diagnosis, the Wassermann method is obviously of such value to the community that a community Wassermann service might well be undertaken by a state agency such as the Board of Insanity or the Board of Health.

CYSTITIS—AN INCOMPLETE DIAGNOSIS.*

BY BENJAMIN TENNEY, M.D., BOSTON.

Surgeon to the Boston Dispensary.

THE number of proprietary and semi-proprietary remedies for "cystitis," "catarrh of the bladder," "inflammation of the bladder" which are advertised to the profession and to the public is equalled only by those for "indigestion," "dyspepsia," and "rheumatism." This can mean but one of two things, either the profession fails to make a complete diagnosis followed by curative treatment or else the condition leading to the symptoms is either extremely resistant to treatment or incurable.

People in pain and with physical handicaps go to some doctor at some stage in their disease as a rule. If they are then told what they already know and given some treatment from which they obtain but little relief, they try other men or clinics until they are relieved or they class all medical help as futile and turn to proprietary medicines or extra-medical delusions. It has been said before that the list of remedies for a given disease was a fair indication of our uncertainty in the treatment of the disease, and it may be said with equal truth that the number of proprietaries and semi-proprietaries advertised as cures corresponds somewhat with the failure of the general profession to promptly and permanently relieve the pains and other handicaps of people who are not well.

Some things are still beyond prompt or permanent relief, but more human ails are controllable now than ever before and a large part of our gain has come from perfecting our diagnosis. A completed diagnosis based on findings apart from the patients' statements and not inconsistent with the statements leads to a choice between a small number of therapeutic measures —often to a choice between mechanical treatment or none.

An incomplete diagnosis leads nowhere, but leaves both doctor and patient in a fog of uncertain and changing therapeutics until nature kills or cures.

To return to the title of this paper, the diagnosis of cystitis is made on one or more of the following symptoms and signs.

1. Frequency of urinating.
2. Pain in connection with urinating.
3. Pus, red corpuscles, and shreds in the urine.
4. Tenderness of bladder to pressure.
5. Appearance through cystoscope.

Three of these can be studied apart from the patient's statements.

1. Frequency in urination depends on the distensible capacity of the bladder quite as much as on the rate of kidney excretion. In urinary tuberculosis and some stages of urethral ob-

* Read before the Somerville Medical Society, May 7, 1914.

struction the actual capacity of the bladder may be reduced to an ounce or less. If the bladder with prostatic or stricture obstruction holds sixteen ounces and always has a residual of twelve ounces its distensible capacity is only four ounces, and as soon as the kidneys have secreted four ounces of urine it calls for relief. If a bladder is in spasm from ureteral irritation its distensible capacity may be a few drachms for some hours and then return to normal. We read and hear of "irritating" urine, and "too acid urine." Both may exist, I do not know, but I have yet to find the patient whose bladder will hold much more warm boric solution than it did of the urine previously expelled from his full bladder.

The common experience of us all in health is that in cold weather with little or no perspiration and dilute urine we empty our bladders more frequently than in hot weather with free perspiration and concentrated urine, unless we make up for perspiration by extra drinking of fluids. The experience of travellers in the desert and of sailors and others deprived of drinking water for long periods indicates that the concentration of the urine has little or no effect in increasing the frequency of urination. On the other hand, most of us know that apprehension or fright will increase the frequency more than can be accounted for by increased kidney secretion. Here the distensible capacity of the bladder is diminished for the time, but returns to normal when the excitement is over.

The distensible capacity of the bladder in health is not absolutely constant owing to the central nervous disturbances. It is also altered in certain cord lesions and in diseases which affect consciousness.

Apart from these extra vesical influences each individual has a normal capacity of his own, which in health will determine the frequency of his urination. In general one whose comfortable distensible capacity is sixteen ounces will have no night urine unless he takes a quantity of fluid during the evening, while one with less or with the habit of evening drinking will probably urinate during the seven or eight hours reserved for sleep. Any condition that diminishes this distensible capacity of the bladder will increase the frequency. External tumors will do it while the bladder remains healthy. Internal tumors by obstructing the urethra and causing hypertrophy of the bladder wall, by their own bulk and perhaps by irritation of the cord centre, will accomplish the same result. Foreign bodies in the bladder may act in precisely the same way. Ulcers of the bladder mucosa probably act on the cord centre only.

My observation has been that any process either above or below the bladder which disturbs the muscle bundles, which are continuous with the longitudinal fibres of the ureter, is associated with the desire to urinate. There is a point just below the internal meatus, where the muscle bundles from the left and right ureters meet and the touch of a sound here brings on the desire to urinate. Inflammation and growths at this point produce the same sensation. This must be a reflex from the cord centre corresponding to the natural impulse to urinate, which is said to be due to the upward pull of the distended bladder on these same muscle bundles. If this be true then any condition pulling on this area will probably cause the same sensation and a hypertrophied ureter wrestling with a calculus, or inflamed by extension of a pyelitis or tied down by adherent appendix or dragged upon by a prolapsed uterus may give the sensation. We find all these conditions accompanied by frequent urination.

Another type of frequent urination is seen in patients who have a weak sphincter and accustom themselves to the habit to avoid the annoyance of incontinence. This is not uncommon in women who have some injury to the urethra during childbirth. Frequency in urination is a poor reason for the diagnosis of "cystitis" without eliminating these other causes for the same symptom.

2. Pain with urination may precede, accompany or follow the act. Preceding the flow it indicates that the distensible capacity of the bladder has been exceeded. Pain during the flow indicates that some inflamed area is being altered in its relations, pulled upon, compressed, or dilated. Pain after the flow is often due to a spasm or cramp of the bladder wall as it responds to an over-stimulus for contraction and any severe inflammatory condition within the bladder wall or the first part of the urethra or the lower portion of the ureter may cause this.

The diagnosis of cystitis from the symptom of pain is not fair to the patient until the possibly serious conditions above, within and below the bladder have been eliminated.

3. Pus, red corpuscles, and shreds in the urine must be seen in catheter specimens from a female and in "second glass" specimens from a male to be considered in this diagnosis. In such specimens the presence of pus and blood indicates trouble, but has no localizing significance, as the source may be in either kidney, either ureter, or the bladder. Shreds showing papillomatous arrangement suggest bladder growths, but tumor cells may sometimes be identified with no clue to their exact source. Pyuria and hematuria are the cardinal symptoms in new growths, lithiasis, and destructive infections of the kidneys and ureters, and a diagnosis of cystitis in the presence of such findings without careful elimination of these dangerous conditions is unfair to the patient and unwise of the doctor from every point of view.

4. Tenderness to pressure in the region of the bladder is misleading. In the male it is confused with tenderness of the seminal vesicles and prostate. In the female, tenderness of the ureteral insertion is a well known indication of inflammatory condition higher up on the same side. Tenderness of infected Skene's glands

may be confused with bladder tenderness as may the inflammatory conditions in and about the broad ligament. Tumor and stone are often causes of exquisite tenderness. The over-distended bladder may be sensitive, but after relief is usually free of all reaction to pressure. As a leading symptom of cystitis it is seldom mentioned and as a confirmatory symptom it is almost worthless.

5. The appearance through a cystoscope is the only finding upon which a diagnosis of cystitis can be made, and the more cases one observes through this instrument the more rarely does one make the diagnosis of cystitis without some really anatomical cause. Red, thickened, bleeding bladder mucosa is sometimes seen, but with these findings we find urethral obstruction, or bladder tumors, ulcers, foreign bodies, diverticula and distorted ureteral orifices, or we search further with ureteral catheter and x-ray until the disease which produces the symptom—cystitis—is found.

We all know that there are many individuals who have these conventional symptoms of cystitis at some time, and others who have recurring attacks. We know, too, that tuberculosis and other destructive infections above and below the bladder, stones, and tumors of the most serious nature first make their presence known through these same symptoms, which are often intermittent. If such a case is seen when symptoms are active and the diagnosis of cystitis is made, the decline of symptoms may be credited to the last drug given, when it is merely what may be called the "negative phase" of the disease. Neither patient nor physician is wiser as a result of the experience, but both are deceived.

The diagnosis of cystitis deserves a place in medicine with "peritonitis," "rheumatism," "gastritis," "neuralgia," and many others which have been resolved into their proper component parts. The sooner we banish it from our own and our patients' vocabularies, the sooner will we make complete diagnoses and deal fairly and honestly by our patients, and the sooner shall we close another avenue through which the patent medicine man gains at the expense of our imperfectly treated, because imperfectly diagnosed patients.

It is easy to cite cases to illustrate the unnecessary suffering and finally crippled condition into which some victims of this diagnosis fall. The most unfortunate have been those with tuberculosis of the kidney.

One such, a man of 32 came in July, 1909, with a story of "inflammation of the bladder" for two years. He had been dosed, his bladder had been washed, he had taken gallons of water and had even spent six weeks in bed with a cystotomy wound to relieve his cystitis. While he made a good recovery from his nephrectomy and has gained thirty-five pounds in weight, his bladder is so contracted by the constant irritation through the inflamed ureter that it is doubtful if he ever recovers a comfortable capacity or normal intervals of urination.

A second was an Italian of 36 who had spent all his savings on pills and potions and local treatment for a period of five years. He was wasted with pain and lack of sleep and had been in bed a month. In the course of his search for health he had had a testicle removed for tuberculosis. A nephrectomy relieved him of most of his pain, he gained forty pounds in weight, worked for nearly a year and then died of some other disease.

A third was an active business man of 38 whose symptoms had existed for two years. Among all the medical men he consulted, one only had told him he had a tubercular kidney and he had seen many and those of good standing. All others told him he had chronic cystitis and treated him therefor. He recovered from his nephrectomy, and lived some months in comparative comfort, though his wound broke down and he had reflux urine through the ureter stump. A reasonably early diagnosis and nephrectomy would have made him an active man for years, to say nothing of the suffering he would have saved.

A fourth was a woman of 35 who had been from one physician to another and then to hospital for pelvic surgery to relieve her right-sided pain and cystitis during a period of three years. A completely destroyed kidney was removed six years ago and today her bladder will hold twelve ounces of fluid and she often sleeps the night through, instead of rising every half hour.

A fifth gave a history of cystitis in 1906, lasting about two weeks and cured by buchu, a recurrence in 1908 cured by tablets, in the meantime a pelvic operation and "cystitis from catheterization" during her convalescence. A left tubercular kidney was removed in 1910 with immediate relief of her pain and gradual return of her bladder to normal function.

Almost every patient with tubercular kidney gets a diagnosis of inflammation of the bladder unless he happens to consult a urologist first, and yet if there is any disease besides cancer where early recognition and treatment is the patient's surest way to avoid suffering, that disease is tuberculosis of the kidney.

Of the cases of stone and cystitis, the most striking among my patients was a woman of 72. Pain and frequent urination amounting to incontinence had been her portion for forty years. I do not know what diagnosis her physician made, but he fitted a leather covered metal plate, eight inches in diameter, held by straps about her body to press on her lower abdomen. This she had worn faithfully and hardly stepped off her piazza for the last twelve years. An observing nurse called my attention to her urinary frequency and a glass catheter made the diagnosis as a specimen of bladder urine was being drawn. With the stone removed her life has been transformed, but the bladder will never get back to the normal capacity. Her relief came too late.

Patients with urethral obstruction whether from stricture or hypertrophied prostate, form another group that suffers from the diagnosis of "cystitis." Most have the symptoms, but they are in worse case than patients with "neuralgia" from an ulcerated tooth, "gastritis" from a gall stone, "rheumatism" from a dislocated semi-lunar cartilage, and "peritonitis" from a perforation in the intestines because there is no hope of spontaneous relief, which may possibly, though it does rarely, occur with these other conditions.

To give cases illustrating the common delay in proper diagnosis and treatment of these conditions one has only to turn to his records of prostatic enucleations and operation for stricture. They vary only in the length of time the patients have suffered waiting for a complete diagnosis. These details are unnecessary and within the personal knowledge of almost every practitioner, and the diagnosis of urethral obstruction is so easily made that any delay in reaching it seems inexcusable.

Patients with new growths in the kidney and bladder form the most important, though the smallest, group of sufferers through the diagnosis of cystitis. If any relief is possible for these patients, diagnosis must be made early and treatment promptly applied. A few months may make the difference between a hopeful and a hopeless case.

Fortunately there is a growing appreciation of the seriousness of frequent urination, painful urination, hematuria, pyuria, and the other urinary symptoms, both within and outside the medical profession. Patients are demanding permanent relief from their pains and disabilities, and physicians are fast giving up the old theoretical pathology, which was made to fit the symptoms, for the modern pathology of the living.

A STUDY OF EXTRA-PULMONARY AND OTHER SOUNDS WHICH MAY LEAD TO ERRORS IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.

By John B. Hawes, 2d, M.D., Boston.

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In this paper I shall discuss certain sounds, not due to tuberculosis or any pulmonary disease, but to physiological processes, which sometimes lead to confusion in the diagnosis of pulmonary tuberculosis. These sounds may cause errors in diagnosis, either by simulating râles or else by obscuring the breath sounds or such râles or other abnormalities as may be present. The conclusions which I have reached in this matter are based on a study of 250 patients seen during the past eighteen months in private practice and in my clinic at the Massachusetts General Hospital. There has been no selection of cases although the greater number were patients in whom pulmonary tuberculosis was present or suspected. I have undertaken this work not to investigate in detail the exact nature and cause of these sounds and the various conflicting theories concerning them, but to find out as far as possible how large a factor, to the general practitioner, such sounds may be in making his diagnosis of chest conditions and, of special importance, how errors due to such causes may be avoided. The sounds here considered are as follows:

1. Muscle sounds.
2. Joint sounds.
3. Tendon or bursal sounds.
4. Atelectatic râles or crackles, otherwise known as marginal sounds.

Muscle Sounds. A detailed description of muscle sounds is unnecessary. In any text-book on physical examination or diagnosis a full description of their nature and origin will be found. In brief, muscle sounds may take the form of a low pitched rumble or roar so loud as to obliterate all breath sounds, or else they may be heard only at the end of forced inspiration. Occasionally they closely resemble a shower of dry crackles.

Joint Sounds. These sounds, to me at least, are more interesting and important and more frequently lead to errors in diagnosis than any of the others. My attention was first called to them by an article by William Ewart[1] of London, to which the reader is referred. In this paper Ewart discusses in detail the original work of Perez and the sign bearing his name besides giving complete bibliography on this subject. Perez was apparently the first to note that certain sounds are produced in joint movements, which in the case of the shoulder and sternal joints may closely resemble râles and may thus lead to errors in diagnosis. "Perez's sign consists essentially in the production of sounds over the upper thoracic surface on actively or passively moving the arms at the shoulder joint, and particularly by raising or lowering them."[2] In a certain small proportion of cases, particularly among those who raise their shoulders up and down in breathing, enough of such joint sounds are produced in the movements of the acromio-clavicular, sterno-clavicular joints and elswhere to cause confusion.

Tendon or Bursal Sounds. These are best described by an article by F. T. Lord.[3] His is the only detailed description of such sounds and how they are produced that I have found. As I shall later point out, I have not found them to be the cause of any confusion.

Atelectatic Râles or Crackles. These sounds constitute a well-known and common phenomenon, but should only rarely lead to errors in

diagnosis. I have included so-called marginal sounds in this group. Although there seems to be considerable difference of opinion as to this I cannot consider marginal sounds as due to anything but the expansion of an atelectatic area in the lung. Bushnell[4] discusses this point at great length, and although he does not commit himself definitely, he seems to feel that such sounds are due to a physiological but not a pathological atelectasis. For the more detailed discussion of these points, and for many others bearing on the subject of extra-pulmonary sounds, the reader is referred to Bushnell's most excellent and comprehensive article.

Of my series of 250 patients, there were 133 males and 117 females. There were 16 children, 15 years old or under, 211 whose ages vary from 16 to 45 years and 23 over 45 years of age. In 169 cases the lungs were normal, 67 had pulmonary tuberculosis more or less marked, 3 a tuberculous pleurisy, 4 acute and 6 chronic bronchitis, 1 chronic influenza. As to the type of patient I have more or less arbitrarily divided these cases into groups, as follows:

1. Fat .....48 cases
2. Fat and muscular .....28 cases
3. Thin .....69 cases
4. Thin and muscular .....33 cases
5. Muscular .....61 cases
6. Emaciated .....11 cases

MUSCLE SOUNDS.

In discussing this subject and others I shall use the terms "absent," "slight," or "marked" in a relative and not an absolute sense. In every individual muscle sounds of greater or less degree can be heard on careful listening; when they are classed as "absent" it is meant that they are negligible as a factor in causing confusion or errors in diagnosis; the same applies to the term "slight" or "marked," not only as regards muscle sounds, but as to joint and bursal sounds and atelectatic râles. In this series of 250 cases muscle sounds, as a factor in causing mistakes, were "slight" in 25 cases, "absent" in 168 cases,—a total of 193,—and "marked" in 57 cases. Of the 193 patients in whom such sounds were absent or slight, 107 were males and 86 females. Of the 57 patients in whom I designated muscle sounds as "marked," 49 were males and 8 females All of these 57 patients were in the "muscular" group, "fat" or "thin," as the case might be. In 23 of the 57 cases, or in 9.2% of the whole number, the muscle sounds either closely resembled râles or else markedly interfered with breath sounds or the detection of other abnormal conditions. Among the 16 children, 15 years old or under, there were two instances where muscle sounds were a potential source of error by obscuring other sounds.

JOINT SOUNDS.

Joint sounds, loud enough to be distinctly audible on auscultation of the apices, front or back, were present in 126 cases. They are easily elicited by rotating the arms or by moving them up and down with the stethoscope held over the apex, front or back, or over the upper part of the sternum. Of the 126 patients in which such sounds were present, 75 were males and 51 females; joint sounds were slight in 83 and absent in 41 instances. Of this last group in which no joint sounds were heard, 17 were males and 24 females. On quiet normal breathing joint sounds were heard in only 9 cases, while there were 55 patients, or 22% of the whole number, in whom joint sounds were present on more forcible breathing and in whom they either closely resembled râles or in other ways led to confusion. In most instances, I have described these sounds as "too loud and coarse," "too snappy," "too harsh," "too metallic and near the ear" to be mistaken for râles. There were no joint sounds heard in examining the 16 children in the series.

TENDON OR BURSAL SOUNDS.

On listening in the scapular region as a part of a regular routine in each of these 250 cases I heard what I believed to be tendon or bursal sounds in 10 instances. These I have described as loud "snaps" or "clicks"; they did not resemble râles in the slightest nor could they be considered in any way a cause of error in diagnosis. In 7 cases they were found in muscular males; 1 case occurred in a very emaciated man, and two in fat women.

ATELECTATIC RÂLES.

I do not consider that this is the place to enter into a detailed discussion of the relation of "marginal sounds" to atelectatic rales. For this, as above mentioned, the reader is referred to Bushnell's[4] article. I think it safe to assume that both, doubtless for different reasons, are due to the sudden opening of pulmonary aveoli which were previously closed. Cabot, Bushnell, and others are on record as finding such sounds or râles in an amazingly large proportion of healthy individuals. For my own part, I was strongly of the opinion, previous to this investigation, that I could find râles at the bases posteriorly in the lungs of 80% to 90% of fat women not suffering from any pulmonary disease. It may be purely a coincidence that in this series of 250 individuals, 48 of whom I have classed as "fat" I could hear such atelectatic râles in only 5 instances. These 5 consisted of 3 women and 2 men, all in the "fat" group. As to the râles or marginal sounds heard in the lungs of healthy muscular persons, especially men, as described by Bushnell, I could find no evidence.

IMPORTANCE OF THESE SOUNDS TO THE GENERAL PRACTITIONER.

It seems to me safe to draw the following conclusions as a result of this investigation concerning these various sounds and their importance to the general practitioner in making lung examinations:—

First as to *Muscle Sounds*. In this particular series they appeared to me to be a potential cause of error in 9.2% of the cases. It was particularly in muscular, closely-knit young adults that they were most marked. The temperament of the patient, whether nervous or otherwise, seemed to play a part, those patients manifestly nervous on being examined presenting louder sounds than those of the phlegmatic type. This factor, however, did not seem to play so large a part as that of the patient's actual musculature. In the great majority of instances the muscle sounds took the form of a low roar, obscuring all other sounds; only rarely did they resemble râles.

Next, considering *Joint Sounds*, I found here a larger source of confusion than muscle sounds. In 55 instances, or 22% of the whole, sounds were present on forced breathing, which closely resembled râles. Sex seemed to make no difference in the occurrence of this phenomenon, nor did the patient's age except that no case occurred in the children in the series. Likewise, the physique of the patient did not seem to be a factor. As would naturally be the case, it was in patients who used the accessory muscles of respiration in breathing that the joint sounds were most marked. It is evident, to me at least, that joint sounds deserve careful consideration as a possible cause of error in diagnosing pulmonary disorders.

Tendon or Bursal Sounds do not resemble nor obscure râles or breath sounds, nor do they occur often enough to be seriously considered.

Atelectatic Rales or *Marginal Sounds* ought never to be a source of error. The latter, as described by Bushnell, I have not been able to find, and the former are usually self-evident and rarely simulate râles due to a tuberculous process.

HOW TO AVOID ERRORS DUE TO MUSCLE OR JOINT SOUNDS.

Muscle Sounds often make diagnosis very difficult. Such sounds, in very muscular and nervously wrought-up persons may render it absolutely impossible to come to any accurate conclusions as to râles or breath sounds. In such cases every effort must be made to make the patient relax physically and mentally. Too cold an examining room or too light a wrap over the patient may be important causes of such sounds. In every instance intense concentration on the part of the physician is necessary.

The avoidance of errors due to *Joint Sounds* is an easier matter. I have made it a part of my routine examinations as a result of this study, whenever joint sounds or sounds simulating râles which I think may be joint sounds, are present, to put the patient through the following procedure: The patient closes his nostrils tightly by holding the nose, the mouth is shut, so that no air can get in or out of the chest, thereby doing away with all movement of air in the lungs; and the patient is then told to "go through the motions of taking a full breath without taking one." Usually the patient is quite at a loss as to what to do; a few minutes instructions on my part, however, with an explanation of what I am aiming to accomplish, has in every case made everything perfectly clear and easy. As in doing this there is no movement of air inside the lungs, there can be no râles. In many cases, when for some reason I have been suspicious of a shower of crackles unexpectedly heard at one apex after a deep breath, I have made the patient go through this procedure and have heard the identical shower of crackles as before. This is conclusive proof that such sounds are surely not râles and that in all probability they are "motor joint crackles." It is needless to mention the importance of such a decision as this to the physician in making his diagnosis and to the patient as to prognosis and treatment. I have not found that this simple procedure has been previously described. In my own work I have found it of value. I believe that it will be so to others.

Finally, I would briefly summarize this study as follows:—

1 *Muscle Sounds* were a potential source of error in 9.2% of the 250 cases. Such sounds occur, particularly in muscular persons of nervous temperament. These sounds can be lessened by quieting and calming the patient and by seeing the the examining room is sufficiently warm. Errors due to these sounds can be avoided only by great care and concentration on the part of the physician.

2. *Join. Sounds*, resembling râles and a potential source of error, occurred in 22% of this series. Errors due to this cause may be avoided by the procedure described in detail above, of making the patient "go through the motions of breathing without taking a breath." This should be done in every doubtful case.

3. *Tendon or Bursal Sounds, Atelectatic Râles or Marginal Sounds*, ought not to cause confusion or be sources of any mistakes in diagnosis.

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[1] William Ewart: British Medical Journal, April 6, 1912.
[2] Quoted from Ewart's article, q. v.
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A PLEA FOR EARLY OPERATION FOR GALL STONES BASED ON AUTOPSY RECORDS.

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Not long ago cholelithiasis was considered a disease for medical treatment, and the patient's life was regulated accordingly. Gradually it became evident that surgery could offer a better outlook to the average patient suffering from gall stones than medicine. Recently I reviewed the autopsies, where gall stones were found, made at the Boston City Hospital. When my work was done and the figures put together, I was surprised to see what an unrefutable argument they offered for early operation. The number of cases is not large but the evidence is conclusive. The cases include all in whom a gall stone was found at autopsy.

The presence of gall stones was suspected in some and unrecognized in others. They include cases from the various departments of the hospital. A very few follow an operation, but only such of those are included here as had stone at autopsy. It seemed fair to include these, an exceeding small number, for the gall stones necessarily were the cause of operation and death. If the operation killed and a stone was left behind how much more serious would a complete operation have been?

There were 108 cases. Among these gall stones were found in the gall bladder alone in 76. Gall stones caused the death of 9 of these, by setting up fatal trouble in the liver or gall bladder. The causes of death were, hepatitis cancer of the gall bladder, pancreatitis, abscess of liver. The remaining cases, 67, died of such conditions as pneumonia, nephritis, endocarditis, arteriosclerosis, cancer of stomach, fracture, tuberculosis, cancer of liver, etc.

There were 32 cases where the stones had passed beyond the gall bladder and were found in the ducts. In 14 of these the cause of death was due to the gall stones. The cause given being abscesses of liver, peritonitis, cholangitis, abscess of bladder, cholecystitis. The remaining 18 died of cardiac diseases, pneumonia, peritonitis, erysipelas, cancer of liver, etc.

From these figures it follows that if a patient with gall stones chooses medical treatment his chance of dying as a result of the gall stones is 14 out of 100 as long as they remain in the gall bladder. When the stones pass into the ducts his chances increase to 43 in 100. Should he elect operation while the stones are in the bladder what are his chances? His chances for death are then from 3 to 5 in 100.

The mortality of 3% for cholecystostomy and 4½% for cholecystectomy were given to me by Dr. E. A. Codman, who compiled a series of cases from various hospitals. The combined mortality of cholecystostomy and cholecystectomy in uncomplicated cases at the City Hospital is 5% plus.

The above figures are astonishingly large, but I offer them as they are. The relative mortality between gall stones in the bladder and those that have passed into the ducts is of special interest even though the figures themselves may for some unexplained reason be large.

The deduction is of course obvious, that advice for operation should follow the establishment of a diagnosis before the stones have time to set up any secondary fatal changes.

Incidentally it is of interest to note that in 4 out of the 108 cases a stone was found which had ulcerated through into the intestine.

Reports of Societies.

AMERICAN ASSOCIATION OF PHYSICIANS.

TWENTY-NINTH ANNUAL MEETING, HELD AT ATLANTIC CITY, NEW JERSEY, MAY 12, AND 13, 1914.

The President, DR. SIMON FLEXNER, in the Chair.

PRESIDENT'S ADDRESS.

PRESIDENT FLEXNER said the extension of the boundaries of knowledge has been such that it has compelled medical colleges to become departments of universities. This rapid extension of knowledge coincided with the active pursuit of physiology, pathology, bacteriology and pharmacology, either alone or in association with clinical studies for which special laboratories and institutes came to be established. Independent institutions for medical research had exercised a distinct influence on medical practice, but the foundation of these institutions was impossible until medical schools furnished an adequate supply of students whose training approximated that of the older European countries. All these conditions had acted more powerfully on clinical teaching. The professor of medicine in the university medical school had ceased long ago to be a general practitioner. The function of the clinical teacher had been newly defined within one or two decades. The American Association of Physicians had sympathized with every movement affecting the progress of medical education, and it favored this later step with the single hope, if it be in the real interest of medical progress, it might be given a chance to succeed.

CHRONIC INTERSTITIAL GASTRITIS.

DR. JOSEPH SAILER, of Philadelphia, reported a case of chronic interstitial gastritis in a male, 45 years of age, who had been subjected to various forms of medical treatment, but none of them was of any avail. Dr. Deaver performed an exploratory operation and found the condition of the stomach

entirely in accord with the clinical picture. The stomach walls were very thick. The stomach was adherent posteriorly and around the pylorus. The adhesions were released, and the stomach wall found greatly thickened. Dr. Deaver believed that gastroenterostomy would have been difficult, in addition to giving no definite relief. There were no enlarged glands along the lesser curvature, but the adhesions were dense along the greater curvature, and a definite gland mass could not be felt. There was no evidence of metastasis. The abdomen was closed and the patient made a satisfactory recovery from the exploratory operation.

DISCUSSION.

DR. DAVID RIESMAN, of Philadelphia, stated that with the x-ray we are not able to distinguish between the malignant and non-malignant types of what is called leather-bottle stomach. This distinction can be made only by clinical observation. Recently he saw a typical case of leather-bottle stomach which was very malignant, because the patient had cachexia and ascites. Both of these conditions in this case were sufficient to determine that the condition was cancerous. The man died in a few weeks. There were no evidences of metastases in the liver, and the liver was not enlarged at any time.

Another case that came to autopsy showed no metastasis from any of the viscera, but marked enlargement of the glands along the greater curvature of the stomach.

THE NATURE OF PERISTALSIS AND THE ACTION OF MAGNESIUM SULPHATE.

DR. S. J. MELTZER, of New York City, advanced two assumptions. One assumption made upon the basis of experimental facts was that peristalsis was a complicated condition in which the phenomenon of inhibition played an important part, and the second was, that magnesium sulphate acted by affecting this inhibitory force.

A CLINICAL STUDY OF ONE THOUSAND CASES OF CANCER OF THE STOMACH.

DR. JULIUS FRIEDENWALD, of Baltimore, presented a clinical study of 1000 cases of gastric cancer. The cases occurred in 10,416 patients, affected with various gastro-intestinal disturbances. The maximum liability to the disease occurred between the fortieth and sixtieth years. The greatest proportion occurred in males, 588 to 412 females. An hereditary history of cancer appeared in 9.4 per cent. of cases; a history of trauma in 1.9 per cent.; anemia was present in 82 per cent. Chronic endocarditis was present in 11.4 per cent.; arteriosclerosis in 69.6 per cent. A history of former indiscretions in diet was obtained in 32.1 per cent.; of alcoholism in 15.2 per cent.; of syphilis in 7.9 per cent.; hyperchlorhydria in 4.9 per cent.; hypochlorhydria in 2.8 per cent.; anacidity in 89.2 per cent. Lactic acid was present in 81.9 per cent. Dysphagia existed in 6.9 per cent. of all cases. Loss of weight existed in 88.5 per cent. Anorexia was present in 89.3 per cent. Vomiting existed in 89.3 per cent. Occult blood was present in the stools in 92.5 per cent. Masses in the form of tumors were detected in 71.9 per cent. Dilatation of the stomach existed in 46.7 per cent. Perforation occurred in 2.3 per cent. Metastasis existed in 67.2 per cent. Operations were performed in 26.6 per cent.

WHEN AND HOW TO USE TUBERCULIN PREPARATIONS IN PRIVATE PRACTICE.

DR. S. SOLIS-COHEN, of Philadelphia, in his paper with this title dealt with pulmonary tuberculosis only. The disastrous results of the early use of tuberculin were owing to (a) crude dosage; (b) unsuitability of cases.

1. *Dosage.*—Correct principles were established by Trudeau. The opsonic index of Wright marked a further advance. Latham's method of administration by mouth, with parallel temperature curve and opsonic index guidance, demonstrated the full trustworthiness of the temperature curve alone, and simplified the procedure.

The following was the author's modification of Latham's method: tuberculin residue (T. R.) triturated with milk, sugar was given with skim milk, whey or beef juice. The initial dose, he said, was one one-millionth of a milligram. Both subjective and objective symptoms of reaction were watched for. The dose was repeated once or twice weekly, according to result. It was gradually increased by increments of one one-millionth of a milligram to the reaction point, and then dropped one point lower, and so continued for some weeks. Later, a further increase was attempted, and if reaction was not shown, was proceeded with in a similar gradual way. The arbitrary increment of one one-millionth of a milligram was maintained during this remittent progression until one ten-thousandth of a milligram had been reached. After that, the increment might be raised to one one-hundred-thousandth of a milligram. Thus by successive stages a maximum dose was attained at a point determined for each individual by all the factors in the case, including the rapidity of the increase, character and intensity of reaction and maintenance of tolerance, as well as the local and general signs of improvement.

The treatment was continued with intermissions, for many months, and may be resumed, if necessary, from time to time over a period of years.

2. Selection of cases. In the majority of advanced cases, according to present knowledge, tuberculin was likely to be harmful. Experienced observers might employ it cautiously under conditions that seemed to call for its use, but others should avoid it, especially in cases showing a tendency to continuous fever, or in which there was, or had been recently, active softening. In the great bulk of early cases it was needless. Under proper treatment, medicinal as well as hygienic, recovery would take place without it.

Its field of action was in the treatment of cases which (1) had not passed beyond the stage of infiltration and which (2) had shown a certain degree of improvement under proper food, fresh air, judicious rest and exercise, and other approved measures, including the right drugs, but in which (3) improvement became sluggish or ceased, or retrogression took place. The slight additional stimulus afforded by an appropriate tuberculin preparation administered at well chosen times, and in correct dosage, would often reawaken the defensive and restorative processes of the organism and be followed by complete recovery.

Illustrative cases were cited.

DISCUSSION.

DR. ABRAHAM JACOBI, of New York City, had used tuberculin in doses of from one-hundred-thousandth of a milligram up to one-five-thousandth of a milligram, and had never seen any unpleasant symptoms. He had given it in combination with other agents. His routine treatment in chronic cases of pulmonary tuberculosis consisted in the internal administration of guaiacol and arsenic with tuberculin, and he had observed no disagreeable symptoms which he could attribute to the tuberculin.

SPLENECTOMY FOR PERNICIOUS ANEMIA.

DRS. WARREN COLEMAN AND JOHN A. HARTWELL, of New York, reported a typical case of pernicious anemia that grew steadily worse in spite of four months' treatment with arsenic, iron, hydrochloric acid, and four transfusions. Splenectomy was performed as a last resort. Ten weeks later, January 13, neosalvarsan was administered. The use of neosalvarsan made it impossible to draw any conclusion as to the effects of the splenectomy except in the interval before its administration. In this interval there was no evidence of more than temporary improvement. At the present time, April 24, six months after the operation, the patient, while looking better and feeling better, is just beginning to sit up.

STUDIES IN PERNICIOUS ANEMIA.

DR. HERBERT C. MOFFITT, of San Francisco, had been able to collect 31 cases of splenectomy for pernicious anemia from the literature, and he reported eight which were done in San Francisco, one in his own service.

The results from splenectomy had been variable. In eight cases death resulted either immediately or soon after operation. A number of other cases had not been improved. In still others reported in the literature surprising improvement had taken place. In his own case, paresthesia, which was obstinate before operation, disappeared at once afterward. There were other striking changes in the blood regeneration which followed soon after operation in many cases.

He had had opportunity to study the spleens after operation in eight cases, and the picture was practically the same in all. Contrary to clinical observations, the weight of the spleen was considerably greater than normal, varying from 450 to 500, and from that point down to 350 to approach the normal of 280. Most observers recorded the size of the spleen in pernicious anemia as not increased, while operative results showed the spleen was considerably larger than normal.

The recent work on splenectomy should not distract attention from the ultimate causes of the disease.

The author mentioned some time ago the similarity between pernicious anemia in man and pernicious anemia in animals, such as horses. Since that time he had had opportunity to observe some cases in animals and to make sections from the liver and spleen in certain cases. The microscopic appearance of the spleen and liver in these cases was that noticed in the organs removed at the operation for pernicious anemia. From a spleen removed in January an emulsion was made and injected hypodermically into a horse, with no change in the anemia. The operation of splenectomy in horses was difficult. Many arteries went into the spleen and possibly the operation could not be successfully done. He had in mind tying the arteries of horses whose spleens were affected with pernicious anemia, and it would be interesting to observe whether, as in human cases, cutting off the circulation in horses would have any effect in stopping hyper-hemolysis, which was characteristic of the disease in animals as it oftentimes was in human beings.

STUDIES IN EXPERIMENTAL ARTERIOSCLEROSIS.

DR. I. ADLER, of New York City, presented a preliminary report summarizing briefly the results of some experiments on dogs that he had carried on for some time. Dogs were injected, partly intravenously, partly subcutaneously, with various substances, such as adrenalin, nicotin, lead, diphtheria toxin, pure cultures of different species of bacteria, all with absolutely negative results.

In a further set of experiments dogs were fed with a number of substances, under varying conditions, and it was believed that some positive results were obtained, so that the aorta in some cases showed lesions which both microscopically as well as histologically were closely analogous, if not absolutely identical with human arteriosclerosis.

MITRAL STENOSIS.

DR. R. C. CABOT, of Boston, related his observations on 200 cases of mitral stenosis before and after death. His studies had impressed him with the fact that mitral stenosis fell into four clinical groups: 1. The cardiac group, in which the symptoms were apparently mechanical, such as stasis, etc. 2. The septic group, in which the symptoms were those of an acute infectious disease. 3. The embolic group, in which out of a clear sky embolism of the brain or periphery appeared. 4. That group in which there were no symptoms whatever, and the patient died of some other disease or after an operation and the pathologist found mitral stenosis after death.

CASE OF RECURRENT FEVER IN AORTIC ANEURYSM.

DR. ALEXANDER MCPHEDRAN, of Toronto, reported the case of a woman, aged 36, of irregular life and habits, who entered the hospital October 18, 1913, complaining of pain in the right chest for about six weeks. She had recurrent fever about every seven or eight days. The aortic arch was dilated and showed a pulsating aneurysm in the first left intercostal space. The temperature became normal and remained so in January, and her general condition improved very much. She was treated with iodids, mercury and salvarsan.

PATENT DUCTUS ARTERIOSUS WITH INFECTIVE PULMONARY ENDARTERITIS.

DR. W. F. HAMILTON AND DR. MAUDE E. ABBOTT, of Montreal, reported this case and drew the following conclusions:

1. This case illustrated in a remarkable manner what hitherto has not been fully emphasized, namely, that a vegetative process is commonly associated with congenital cardiac defects.

2. These vegetations in the present case, and probably in the majority of such processes occurring in conjunction with cardiac defects, were not a simple thrombosis of mechanical origin, with secondary infection supervening, but from their onset were inflammatory in character, the result of an invasion of the vessel wall by infective organisms at the seat of maximum strain.

3. The inflammatory process present in this case manifestly did not arise as a result of an embolic infection through the vasa vasorum, but began by the invasions of the intima at a single point, the pulmonary end of the ductus, which was probably the seat of maximum strain from the two combined causes, the eddying blood stream within its lumen, and the rigid calcareous gland which lay in close juxtaposition without.

4. The present, so far as they knew, was the only recorded case in which the ductus and pulmonary artery in the neighborhood were the sole seat of the disease and in which the pulmonary orifice of the ductus had been demonstrated to be the initial seat of the lesion.

DISCUSSION.

DR. W. S. THAYER, of Baltimore, had had a case very closely similar to the one related in which there was an increased area of dullness in the second and third interspaces, a thrill, and a prolonged murmur beginning in systole and lasting over diastole with an accentuated second pulmonic sound. The diagnosis was open ductus arteriosus. As time went on the patient developed paralysis of the left recurrent laryngeal nerve. The patient was sent to a well known radiologist who took an x-ray and in sending the plates back wrote a letter in which he made an exact diagnosis of the condition from his standpoint, stating, "this is an instance of mitral stenosis with dilatation of the left auricle, and pressure upon the recurrent laryngeal nerve," but it did not occur to the radiologist that there were other methods of making the diagnosis.

DR. ABRAHAM JACOBI, of New York City, said that he knew a baby when he was only a few months old. He was now a boy twelve years of age. His ductus had been closed nearly three years. He saw him once or twice every year and always found the same symptoms, the murmur getting less and less marked until finally it disappeared not only from the carotids but also from the pulmonary artery from below up.

CERTAIN TESTS OF RENAL FUNCTION.

DR. W. S. THAYER, of Baltimore, related 18 instances of severe advanced chronic nephritis, and concluded that where he had been able to correlate the anatomical and clinical observations, they served to fortify and to verify his previous opinion that the phthalein test was a reliable one of considerable diagnostic and prognostic value, especially in the study of chronic nephritis.

DISCUSSION.

DR. CHARLES F. WITHINGTON, of Boston, reported several cases of nephritis. One of the patients, a man, brought into the hospital unconscious, showed unmistakable symptoms or evidence of acute nephritis. There was a history of convulsions and of his being comatose. Twenty-four hours after he was brought in the phthalein output was 70 per cent. His condition proceeded to clear up and he went out about two weeks after he was brought in, showing a surprising phthalein output, although manifesting signs of nephritis.

DR. JOSEPH L. MILLER, of Chicago, stated that a man came to the hospital, not very ill, in whose case a definite diagnosis of chronic interstitial nephritis was made. He was passing 2000 c.c. of urine a day. He could not get a trace of phthalein through in two hours. In forty-eight hours and up to the time he went into coma, he passed a large amount of urine, and at the end of that time went into coma and died. Autopsy showed a high degree of interstitial nephritis.

DR. THAYER (closing): said there were many instances of hydropic nephritis with very few grave subjective symptoms excepting the hydrops. One found sometimes large quantities of albumin and casts in the urine, yet there was perfectly normal renal function if we estimated it by these tests, excepting the question of salt retention.

SYPHILITIC NEPHRITIS

DR. ALFRED STENGEL AND DR. J. HAROLD AUSTIN, of Philadelphia, in a joint paper stated they had examined the urine with the polarizing microscope fifty-eight times from forty-six cases. Of these 46, 23 showed nephritis with an abundance of albumin and casts in the urine. Of these 23 cases, six had positive Wassermanns, 3 had strong presumptive evidence of syphilis, but no positive Wassermanns; 14 had not the slightest evidence of syphilis. The six cases with positive Wassermanns, all showed lipoids in the urine. The rest of the 46 cases studied were made up in part of nephritis cases of the interstitial or arteriosclerotic types, with only traces of albumin in the urine, and a few hyaline and granular casts, some with syphilis and some without, any number of cases of syphilis but with no nephritis, and any number of control cases with neither syphilis nor nephritis. None of these cases showed lipoids in the urine. One of the six syphilitic cases with nephritis showing lipoids in the urine had not received any mercury.

They found of further interest the fact that of their last 84 cases of nephritis, for 46 cases there could be recognized from the histories such accepted etiological influences as infections, lead, alcohol, excessive work, exposure, senility, etc., but that for 18 cases no such factors could be determined. Of these 18 cases, there existed in eight either an unquestionable history of syphilis or a positive Wassermann or both, and in six more of these cases no Wassermann had been secured.

In order to determine whether the common experimental degenerative nephritides of animals would be associated with lipoids in the urine, three rabbits were given uranium nephritis and one dog a chromate nephritis. The four experiments were negative; no lipoids were found in the urine. Further experiments with mercurial nephritis, phosphorus and chloroform lesions and syphlitic inoculations were in progress.

X-RAY EVIDENCE IN EARLY AND LATENT CANCER OF THE STOMACH.

DRS. FRANKLIN W. WHITE AND RALPH D. LEONARD, of Boston, said their material consisted of 114 hospital and private cases suspected of having can-

cer of the stomach, thoroughly examined within a year by clinical and x-ray methods. In forty cases cancer was proved; in sixty-six it was ruled out; in eight the diagnosis remained doubtful. The group of cases was studied to determine how far the x-ray evidence had helped to detect early or latent cancer. Recent cases were chosen because of recent improvements in x-ray technic. The x-ray evidence in early cancer was very scanty; in latent cancer it was abundant and important. In the group of operated cases of cancer, a comparison of correct diagnosis before and after x-ray examination showed the latter distinctly higher.

THE PATHOLOGIC EVIDENCE OF THE RELATIONSHIP BETWEEN GASTRIC ULCER AND GASTRIC CARCINOMA.

DR. LOUIS B. WILSON, of Rochester, Minnesota, stated that any existing disagreement as to the relationship between gastric ulcer and gastric carcinoma depended on (1) failure to understand the pathologic data. (2) Inappreciation of the bearing on the clinical data; or (3) failure to appreciate the correlation existing between the two.

Small gastric ulcers were usually simple and large cauliflower cancers usually showed little evidence of previous ulceration, but between these two lay a large group of ulcerated lesions of the stomach, some of which were ulcers only and others of which resembled ulcers in all respects, except that in addition they also showed cancer.

So far as the pathologist was concerned, he could not positively distinguish, in many such specimens, between simple ulcer and ulcer plus cancer, except with a microscope. When, in such a specimen showing cancerous areas, no cancer cells were found in the base of the ulcer one was warranted in assuming that the ulcerative lesion preceded the cancer.

A review now in progress of all the tissue removed from the stomach and duodenum in the Mayo clinic since 1905 showed that approximately 60 per cent. of the specimens which showed cancer gave more or less pathologic evidence of the precedence of ulcer in the same area.

Of the specimens of gastric tumors examined pathologically and diagnosed either cancer or cancer on ulcer, there was agreement between the clinical diagnosis and the pathologic diagnosis in more than 80 per cent. of the cases.

THE INSPIRATORY EXAGGERATION OF THE DICROTIC WAVE IN PERICARDITIS.

DR. ALBERT E. TAUSSIG, of St. Louis, Mo., stated that ordinarily, the dicrotic wave in the radial sphygmogram did not vary in size with the phase of respiration. In pericarditis, however, it became more or less exaggerated, sometimes greatly so, during inspiration. In all of the five cases studied from this point of view, the phenomenon was observed. Anatomical considerations rendered its occurrence readily explicable. It might have diagnostic significance.

INTRAUTERINE AMPUTATION.

DR. GEO. DOCK, of St. Louis, Mo., reported a case bearing on the pathology of so-called congenital amputation with x-rays and photographs.

THE ETIOLOGY OF SOME OF THE INFECTIVE TROPICAL GRANULOMATA.

DR. RICHARD P. STRONG, of Boston, stated that among the infective granulomata which occurred more commonly in certain tropical countries, which were perhaps of unusual interest from an etiologic point of view, were verruga peruviana ulcerating granuloma of the pudenda, and framboesia. The relation of these forms to one another was considered.

Verruga peruviana and oroya fever had been considered to be merely different stages of the same disease, oroya fever having been regarded as the initial stage of the granulomatous verruga stage. The two diseases, however, were quite distinct and had a very different etiology. Verruga peruviana was due to a virus which might be transmitted to some of the lower animals, while oroya fever owed its origin to a parasite of the red blood corpuscles. The two diseases also had a very different pathology.

The etiology of ulcerating granuloma did not seem to be definitely determined.

In view of the recent work in the transmission of the virus of verruga to some of the lower animals, it was recommended that more extensive experiments be carried out with the idea of transmitting ulcerating granuloma to monkeys.

A DIFFERENTIAL STUDY OF COCCIDIOIDAL DISEASE AND BLASTOMYCOSIS.

DRS. P. K. BROWN AND W. T. CUMMINS, of San Francisco, stated that cats and white rats were found to be markedly insusceptible to infection. Rabbits and guinea-pigs appeared to be somewhat more susceptible to coccidioidal than blastomycetic infection. Coccidioidal involvement was noted in two rabbits, while the cerebrospinal tissues remained unaffected in all animals in advanced disease. Passage through animals exalted the virulence of the organisms. Highly acid and alkaline agar offered but little inhibition to the growth of the organisms. There was profuse aerobic growth in, but no fermentation of, eighteen sugars. Fifty dyes were studied for their inhibiting effect upon the growth of the organisms. Crystal violet was found to be the most inhibitive and in concentration forty times greater than the minimum inhibitory dose, was not toxic for guinea-pigs and white rats.

They discussed the differentiation of the two diseases clinically, pathologically, and bacteriologically and by animal experimentation.

THE INFLUENCE OF BENZOL INHALATIONS ON EXPERIMENTAL PULMONARY TUBERCULOSIS IN RABBITS.

DR. WILLIAM CHARLES WHITE, of Pittsburgh, stated that benzol C_6H_6 was the best solvent for the fat portion of the tubercle bacillus. It extracted a greater percentage of fat than any other single solvent would take from the bacilliary substance. Because benzol could be easily vaporized and utilized as an anesthetic, it was thought possible in this way to dissolve living tubercle bacilli after their entrance into the pulmonary capillary system by way of the ear vein and before the formation of the tubercle.

It was hoped in this way to obtain a solution of all the living portions of the tubercle bacillus within the body and the possible development of a retarda-

tion of the process produced by a fatal dose of tubercle bacilli and the establishment of an immunity to a further dose of the organism. Contrary to the desire expressed in the theory, he found that in every instance whether the infecting tubercle bacilli were of low virulence or of high virulence, the resulting infection in rabbits was very much more severe in those treated by inhalation of benzol than in those infected with the same weight of infecting organism.

The symptoms produced in rabbits by the inhalation of benzol were similar to those described by Torald Sollmann for the inhalation of gasoline vapors. Animals might be given benzol inhalations, 5 c.c. every second day for periods up to three and even four weeks without resulting in death. The resulting leucopenia varied very much, the lowest white cell count was 3800 per cm. The red cell anemia was very variable, the lowest in our series being 3,600,000 per cm. The majority retained a normal red cell count.

The blood smears and counts exhibited changes similar to those described for the injections of benzol by Selling and others.

In all thirty-three animals were used; twelve controls and twenty-one treated. The pathologic findings in many of these animals were very striking. In thirty per cent. of the treated animals, after receiving 5 c.c. inhalations of benzol every second day for three weeks, and then being allowed to live two to three weeks longer, extreme enlargement of the spleen was found. In one instance the spleen measured 13 x 3.5 x 3 cms., and the circumference of its largest part was 9.5 cms. There was a large hemorrhage in the substance of this spleen.

There was in all twenty-one treated animals but a single case of purpura with hemorrhages into the mucous membrane of the stomach and bowel.

There were marked fatty changes both in the liver and the kidneys of the treated animals.

SOME RELATIONS OF THE BRAIN AND OF THE OLFACTORY APPARATUS TO THE PROCESSES OF IMMUNITY.

DR. HENRY SEWELL, Denver, Colorado, drew the following conclusions from his experimental work on this subject:

1. Guinea-pigs sensitized to horse serum may be desensitized by residence in a horse stable.
2. It was probable that this reaction might be rapidly achieved through the olfactory sense or more slowly by absorption through the respiratory membrane.
3. The period of anti-anaphylaxis was of less than two days' duration.
4. The converse of this, sensitization of normal guinea-pigs in stable air he had not been able to achieve.
5. Removal of part of the brain of a sensitized guinea-pig produced much more severe shock than the same amount of injury in a normal animal.
6. This shock was apt to be followed by a period of anti-anaphylaxis of short duration.
7. Section of the olfactory nerves within the cranial cavity preceding the brain operation by a day or more abolished the tendency to shock.
8. Such nerve section in the normal animal also seemed to reduce the shock arising from definite brain injury.

Depression of the olfactory sense through cocain and the resemblance of symptoms from poisoning with this drug to those of anaphylaxis were discussed.

The body as a whole might be sensitized through the peripheral application of horse serum after a definite latent period which did not seem to be affected by previous general sensitization.

THE NORMAL AMOUNT OF DIASTATIC FERMENT IN THE URINE AND FECES AND ITS VARIATION IN DISEASES OF THE PANCREAS.

DR. THOMAS R. BROWN, of Baltimore, stated that from his study of the diastase-content of urine and feces in normal and in certain pathologic conditions, the following conclusions could be drawn:

1. In healthy individuals the diastase-content of the urine falls within quite definite limits. Markedly small amounts of this ferment in the urine, in the absence of renal changes, were suggestive, although not diagnostic, of pancreatic disease, but the real value of these normal limits would probably be in furnishing criteria in testing the renal function by the diastase output of the urine.
2. The stool, if rigorously exact methods are carried out as to food (milk), purgative employed, preservation of specimen, estimation of ferment, etc., also furnished a content within definite limits. He could not insist too strongly upon the procedure being exactly the same in all cases. The effect of waiting too long after the stool has been obtained before making the examination, the influence of variations in temperature in the place where it was kept, and of different laxatives and different foods, was so great as to render the results obtained by methods in which insistence upon such a rigorous technic had not been made of much less value.
3. Extensive carcinoma of the pancreas showed no diastase in the tubes of least dilution in his method, and this absence of ferment should prove of help in the diagnosis of this condition.
4. In chronic pancreatitis diastase was present in the stool, but in markedly diminished amounts.
5. In achylia gastrica the diastase-content of the stool was practically normal in all the cases examined. This, in the first place, suggested that in the absence of hydrochloric acid some other method of pancreas invasion was called into play; and, in the second place, that the diarrhea met with in certain of these cases of achylia gastrica—the so-called gastrogenous diarrheas—was not of pancreatic origin.
6. If all the controllable factors were standardized, the results obtained by the study of the diastase-content of the stool should be of real value in the diagnosis of pancreatic disease and in the study of functional disturbances of this gland.

ACONITE AS A VASO-DILATOR.

DR. WILLIAM HANNA THOMSON, of New York City, stated that after many years of experience in the use of aconite in chronic interstitial nephritis, he regarded it as the most efficacious vasodilator which we possessed, when given systematically in full doses. Aconite thus administered reduced, at once, the blood pressure, produced a full and compressible pulse, and greatly increased the percentage of the elimination of urea in interstitial nephritis. The most important action of aconite, when administered in interstitial nephritis, was to increase the elimination of urea. The beneficial effects of aconite were particularly pronounced in mental derange-

ments of the nature of melancholia with high blood pressure.

THE SUBCUTANEOUS ADMINISTRATION OF OXYGEN AS A THERAPEUTIC MEASURE.

DR. JOHN MCCRAE, of Philadelphia, stated that he had used oxygen in this way for the last two or three months and believed it was the rational method of administering it, and properly placed, it was useful. He had had occasion to employ it in a surgical case which had a severe operation. The patient looked as though he might die in a short time. His respiration was 60; he had extreme edema of the lungs, extreme pallor, profuse perspiration, and signs of impending death. With repeated injections of oxygen the man recovered. He had used oxygen in thirty cases and believed it should be a part of the armamentarium of the surgical operating room.

INFECTIOUS AND TOXIC FORMS OF TRANSVERSE MYELITIS.

DR. B. SACHS, of New York City, reported five cases of complete transverse myelitis. Of this number, four recovered completely, and one proved fatal.

The first of these cases he reported two years ago with the idea that the transverse myelitis was due to the poliomyelitis virus, that statement being based on the fact that the case appeared during the epidemic of poliomyelitis in New York City, and in many respects it was similar to poliomyelitis. There was some peculiar form of infectious transverse myelitis which in four out of five cases led to recovery. The condition was more common than heretofore supposed and should receive further consideration.

EPIDEMIC OF STREPTOCOCCUS SORE THROAT.

DR. JOSEPH A. CAPPS AND DR. J. D. DAVIS, of Chicago, described in a joint communication an epidemic of streptococcus sore throat in Jacksonville, Illinois, which was traced to the milk of cows affected with streptococcic mastitis.

DISCUSSION.

DR. GEO. M. KOBER, of Washington, D. C., pointed out that he made his first collection of milk-borne epidemics in 1894, and at that time was impressed with the studies made in England by Kline, Crookshank, and others in regard to so-called epidemics of scarlet fever which they attributed at that time to an inflammatory condition of the teat or udder of the animal. In analyzing the situation he concluded and ventured to express the opinion in 1895 that these were not true cases of scarlet fever, but typical instances of either staphylococcic or streptococcic infections, because he had seen a great many instances where an eruption similar to that observed in cases of scarlet fever was due to streptococcus infection.

With our present knowledge of milk-borne diseases, nothing short of pasteurization of milk would confer immunity from these infections.

DR. R. C. CABOT, of Boston, asked what sort of an eruption it was.

DR. CAPPS replied that it was erythematous. Four of the cases were described and diagnosed by very good clinicians as erysipelas.

PATHOGENESIS OF POLIOMYELITIS IN THE LIGHT OF RECENT RESEARCH.

DR. SIMON FLEXNER, of New York City, stated that recent experimental studies on poliomyelitis confirmed the view that in man infection occurred through the upper respiratory tract, and that the virus passed to the central nervous organs by way of the cerebrospinal fluid and not by way of the blood.

Book Reviews.

Die Moderne Therapie der Gonorrhöe beim Manne. Ein Leitfaden für Studierende und Aerzte. Von PROF. DR. PAUL ASCH, in Strassburg i. Els. Mit 25 Abbildungen in Text. Bonn: A. Marcus and E. Webers Verlag. 1914.

This small pamphlet of eighty-one pages contains twelve short lectures which embody the author's fifteen years' experience in the treatment of this disease. There is no attempt at completeness, and the writer states in his preface that his sole object is to present in brief form, his own beliefs and opinions as acquired from his own experience. The German is terse and vigorous and no words are wasted, so there is much knowledge contained in a small space. Type and paper are excellent, and there are twenty-five sketches, chiefly of instruments in common use.

Modern Medicine, Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by SIR WILLIAM OSLER, Bart., M.D., F.R.S.; and THOMAS MCCRAE, M.D. Volume II, Diseases Caused by Protozoa and Animal Parasites, Diseases Due to Physical, Chemical and Organic Agents, Diseases of Metabolism and of the Respiratory System. Second edition, thoroughly revised. Illustrated. Philadelphia and New York: Lea and Febiger. 1914.

The second volume of this standard text-book requires little in the way of comment. The eminent authors have revised their special sections; there is a new section on pellagra. Dr. Osler and Dr. Churchman have written an authoritative article on syphilis.

A Manual of Clinical Diagnosis by Means of Laboratory Methods. By CHARLES E. SIMON, M.D. Eighth edition, enlarged and thoroughly revised. Philadelphia and New York: Lea and Febiger. 1914.

The eighth edition of this well-known manual has grown to eight hundred pages. Like its predecessors, it contains all the modern methods of laboratory diagnosis. There is an adequate discussion on complement fixation tests, renal function tests, and the Abderhalden's pregnancy test.

Forensic Medicine and Toxicology. By G. O. HAWTHORNE, M.D., fellow of the Royal Faculty of Physicians and Surgeons of Glasgow, lecturer on Forensic Medicine in the London School of Medicine for Women; physician to the North-West London and Royal Waterloo Hospitals. Third edition. New York: Longmans, Green and Company. London: Edward Arnold. 1914.

In this book the author has given a remarkably clear and definite statement of the distinction between the expert, drawing inferences from facts, and the ordinary witness testifying to facts. It can be readily seen that usages in English courts are somewhat different from our own. In the detection of blood stains the author states that there are no means by which menstrual blood can be differentiated from blood from a wound, yet this formed an important point in the Tucker trial, where the presence of menstrual blood was determined by the association of vaginal cells. The author is up to date in his illustrations and references, using the Crippen case for proof of the positive application of the Vitali test to vegetable alkaloids (hyoscin, hyoscyamin and atropin) alone, and not to the mydriatic animal alkaloid (ptomaines). Full attention is paid to the danger of water gas with its dangerous carbon monoxide. Another fact upon which he dwells, illustrated by a fatal case of poisoning, is that illuminating gas may make its way into a house from a broken street main, cause the death of an individual in the room, without an explosion, though a burning light was constantly present. His differential diagnosis of the causes of unconsciousness could be read with profit by every police surgeon, where the presence of cerebral disease or alcoholism has often to be decided and by whom a mistake is frequently made. Although, as stated, the practices of the courts of Britain differ from those of our own, so much marked good sense is contained in this book that it can be perused with profit by all interested in medical jurisprudence.

Practical Sanitation. By GARDNER AND SIMONDS. St. Louis: C. V. Mosby Company. 1914.

The authors of this book have accomplished their object of providing a plain, non-technical exposition of the duties of the health officer. With this volume at hand the health officer should certainly be able to cope more efficiently with the exigencies of his duties. It is obviously not intended for the man in charge of large city or state health organizations, but should admirably meet the needs of the health official of small municipal or rural communities, and should be readily comprehensible to the non-medical man.

Part I, which takes up the consideration of epidemiology, gives information in regard to the management of epidemics, isolation and quarantine, isolation hospitals and camps, and disinfection, which could not readily be found except by a man with a large library at hand. The grouping of the diseases is perhaps not entirely logical, and the discussion of the diseases might well be more from a sanitary and hygienic point of view rather than clinical.

Part II, on general sanitation, should prove extremely valuable as indicating the lines along which the duties and opportunities of the health officer lead, and in guiding him in the methods of carrying out his work. The all-important subject of vital statistics is given due prominence, and is presented in such a manner as to enable the local health officer to keep satisfactory records of his community, even though he had no previous statistical training. In this section of the book are also taken up such matters as the inspection of schools, factories, and public institutions, the disposal of sewage and garbage, the subject of soil pollution, the conduct of various campaigns, as those against rats and flies, and finally the inspection of food, including milk and water.

Of course the legal aspect of health work could not be given a comprehensive discussion in a book of this nature, as the problem is one which varies with each community; but a number of valuable hints are given which should be of great value to the sanitarian in his relation with the law.

Part III, which deals with laboratory methods, would be of more value if, instead of limiting itself too much to methods of collecting samples and transporting them to the laboratory, would take up at least the simpler laboratory technic in a manner which would enable the reader to undertake these processes.

The book on the whole, while not being a textbook on sanitation, undoubtedly fills a long-felt want, and should go far toward improving the health administration of the smaller localities. The principles laid down are certainly in accord with the accepted teachings, and while being thoroughly up to date, do not advocate any of the extremely recent and untried methods.

THE BOSTON

Medical and Surgical Journal

THURSDAY, JUNE 18, 1914.

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ANNOUNCEMENT.

ON April 10, 1914, the BOSTON MEDICAL AND SURGICAL JOURNAL passed into the hands of new owners. On June 10, 1914, the Council of the Massachusetts Medical Society adopted the recommendations of its Committee of Nine, looking toward an affiliation between the Massachusetts Medical Society and the BOSTON MEDICAL AND SURGICAL JOURNAL.

We, the new owners, desire to express our appreciation of the confidence thus shown in the new management, and assure the members of the Massachusetts Medical Society that we will make it one of the chief concerns of the JOURNAL efficiently to serve the Society, whose official organ it will thus become. We feel that with this association the first step has been taken toward enlarging the scope of the JOURNAL.

We recognize the dignified position which this, the oldest weekly medical journal in America, has always held. Our purpose is to maintain this position of dignity. Our hope is that in the future the JOURNAL may become the most important medium of expression for scientific and clinical medicine in the East, and with courage and timeliness may serve the needs of the community.

Our predecessors in ownership accepted the JOURNAL as a trust, deriving no personal profit therefrom. We, in the same spirit, agree to devote to the realization of those hopes we have expressed, any revenue above expenses which the JOURNAL may afford.

We shall welcome criticism of every sort and from all sources, and we ask the help of all those who have the best interests of medicine at heart.

JOEL E. GOLDTHWAIT, M.D.,
EDWARD C. STREETER, M.D.,
HUGH WILLIAMS, M.D.

MASSACHUSETTS MEDICAL SOCIETY.

THE one hundred and thirty-third annual meeting of The Massachusetts Medical Society was held in Boston on Tuesday and Wednesday of last week, June 9 and 10. The weather of the first day was unseasonably cold, that of the second day very hot; but all the exercises and sessions were well attended.

During the forenoon of June 9 members of the Society were invited to attend specially arranged medical and surgical clinics and demonstrations at the principal Boston hospitals. The annual meeting of the Council was held at noon on this day, and in the afternoon the sections of medicine, surgery, and tuberculosis held their separate sessions at the Copley-Plaza Hotel.

The Shattuck Lecture was delivered in the evening of June 9 by Dr. Herbert C. Moffitt of San Francisco, Cal., and was well received by a large audience of members. It will be published in full in a later issue of the JOURNAL. Following the lecture there was an informal reception by the President and a most enjoyable pop concert, with light refreshments, in the ball room.

On the morning of Wednesday, June 10, the annual meeting of the Society was held at the Copley-Plaza. Dr. Charles F. Withington, of Boston, was elected president for the ensuing year. Dr. Samuel B. Woodward, of Worcester, was elected vice-president; and Dr. Everett A. Bates, of Springfield, orator to deliver the annual discourse in 1915. At noon the annual discourse of this year was delivered by Dr. Horace D. Arnold, dean of the Harvard Graduate School of Medicine.

Dr. Arnold touched upon many current medical and sociologic problems, on medical education, the registration of physicians, health education of the public, the milk problem, and med-

ical legislation. Of the recent anti-vaccination movement, he spoke as follows:—

"Our recent experience with the vaccination laws shows the danger of public indifference. The present generation knows practically nothing about this loathsome disease of smallpox, which was formerly a veritable scourge, and a great many physicians have never seen a case. People have come to accept this freedom from smallpox as a matter of course, and they are apt to forget that constant vigilance on the part of the health authorities and the continued protection of vaccination alone stand between them and the possibility of a serious outbreak of this disease. It is greatly to the credit of the representatives that they were not carried off their feet by the fierce onslaught of the friends of the bill.

"The danger is passed for the time being, but it is not eliminated. But in this connection the medical profession has a duty to itself. It should see that its members are above criticism in the way vaccination is performed. Let us be frank about the matter. There is danger in vaccination—not in the vaccine itself, but in careless methods of using it. In Massachusetts a clean safe virus is furnished by the state to all citizens free of charge. It is a fact that a certain small number of cases of infection do result either because the physician is careless in the operation or because he does not sufficiently instruct the patient about the after-care. It should be considered as much a disgrace to a physician to have an infected wound follow vaccination as it is to have it follow a surgical operation, for it is equally avoidable.

"This is an active issue between the profession and the public. A certain number of persons have just reason to complain of the results of vaccination when it has been improperly performed. In their ignorance they attach the blame to the procedure itself, instead of to carelessness. And the reputation of the whole profession suffers because we thus tacitly shoulder the errors of incompetent practitioners."

In the afternoon of June 10 the combined meeting of the three sections of the Society was held at the Massachusetts General Hospital. The annual dinner at the Copley-Plaza in the evening was attended by 850 members and guests. The retiring president, Dr. W. P. Bowers, of Clinton, Mass., was toastmaster, and addresses were made by Governor Walsh, Bishop Lawrence, Dr. Frederick C. Shattuck of Boston, Dr. Edward L. Martin of Philadelphia, Dr. Herbert C. Moffitt of San Francisco, Dr. James W. Kerr of Washington, assistant surgeon-general of the United States Public Health Service, and Dr. Withington, the president-elect of the Society.

The meeting was in every feature a success, and especial credit is due the members of the committee of arrangements, whose efficiency and hard work made this success a possibility and a reality.

MEDICAL LEGISLATION. MASSACHUSETTS STATE BOARD OF INSANITY.

WHILE the subject of the organization of the Massachusetts State Board of Insanity, to which we made editorial reference in the issue of the JOURNAL for April 9 (p. 584), is under consideration by the joint legislative committees on ways and means and public institutions, a tentative bill has been prepared for discussion by those committees. This bill provides for a board of insanity, to consist of three members, to be appointed by the governor for terms of three years, one to retire every year, and each to be paid a salary.

"The chairman is to be designated by the governor and all are to devote their whole time to the work. At least one member must be an expert in matters relating to insanity and the insane. The bill removes prohibition against the appointment of members of the present General Court. Any member may for cause be removed by the governor. The bill also provides for a paid executive secretary, who must be a physician and an expert on insanity.

"In addition to its present powers, the board is given charge of all insane, feeble-minded, and epileptic persons, and persons addicted to the intemperate use of narcotics or stimulants, the care of whom is vested in the Commonwealth by law, and of all institutions or buildings owned by the Commonwealth and used for the care of such persons. The Norfolk State Hospital and the hospital cottages for children are excepted. These are to be in charge of the State Board of Charity.

"For each institution under control of the board there is to be a board of seven trustees, five men and two women. There must be thorough visitations of each institution by two of the trustees at least once in two weeks, and by a majority of them quarterly, and by the whole board semi-annually; and after each of such visits a written account of the condition of the institution must be transmitted to the State Board of Insanity. The trustees are to receive no compensation for their services."

In general, the provisions of this plan seem well conceived and adequate. Its further discussion in committee will doubtless lead to suggestions for its satisfactory improvement.

THE SURGEON-GENERAL'S LIBRARY.

IN the United States Army appropriation bill, which passed the Senate some weeks ago, it was provided that the appropriation for the Surgeon-General's Library shall be conditional upon its merging with the Congressional Library, of which it shall became a subordinate department. This provision was inserted without consultation with either the surgeon-general or the librarian of congress, and seems a most unwarrantable piece of aggression. As a matter of fact both of them are opposed to the change. Whatever might be the administrative conveniences of such a step, they would be more than outweighed by the disadvantages of curtailing the independence and abrogating the autonomy of the largest and most valuable medical library in America. It is sincerely to be hoped that this objectionable provision will be stricken from the appropriation bill in its consideration before the House.

MEDICAL NOTES.

LONDON DEATH-RATES IN APRIL.—Statistics recently published show that the total death-rate of London for April, 1914, was only 13.8 per 1000 inhabitants. Among the several districts and boroughs the highest rate was 19.1 in Finsbury, a crowded central slum, and the lowest was 9.9 in Lewisham, a suburb on the south.

AN OUTRAGE IN DUNDEE.—The following political outrage at Dundee is reported in a recent issue of the *Lancet*:—

"A new hospital for women in Dundee, which was on the point of completion, was partly destroyed by fire in the early morning of May 22nd. The hospital was to have been opened next week. The damage is estimated at some £2000 or possibly more. The hospital, a two-storied building, was erected through the liberality of a number of leading citizens, and was designed to take the place of the present hospital for women in Seafieldroad, which falls to be vacated next week. The new hospital was begun nearly two years go, and every effort was being made to get it ready for occupation. It is generally assumed that the fire was the work of suffragists. Messages such as are common in other incidents of the kind were found. It is believed that six months will be required to get the damage repaired, and although the numbers at the old hospital were being kept down with a view to the removing from one premises to the other, it is probable that temporary accommodation will have to be provided. Fortunately the loss is covered by insurance."

EXPERIENCE WITH VACCINATION AT BELFAST.—In connection with our recent local discussions about vaccination, the following item from Belfast, Ireland, seems of interest:—

"A convincing statement has been sent to the Belfast board of guardians from the council of the Ulster Medical Society and from the executive committee of the British Medical Association (Belfast division) in reference to the campaign now being conducted in Belfast against vaccination. Details of local experience and of great importance are given. In the last outbreak of smallpox in Belfast (1904-05) out of 178 cases there were 9 deaths. Of those attacked, 146 had been vaccinated and 2 of them died, while of 32 who had never been vaccinated 7 died. Thus, 1 out of every 5 unvaccinated people who contracted smallpox died, while of every 73 vaccinated only one succumbed. There was not a single case of smallpox in a revaccinated person. Moreover, the medical superintendent of the Belfast Fever Hospital, whose experience extends over 20 years and covers six outbreaks, has never had a case of smallpox in a revaccinated person."

HONOR FOR DR. LOEB.—It is announced that Dr. Jacques Loeb, of the Rockefeller Institute for Medical Research, has been elected a corresponding member of the section of anatomy and zoölogy of the Paris Academy of Sciences, in succession to the late Lord Avebury.

HONORARY DEGREE FOR DR. AGRAMONTE.—At the recent commencement exercises of Columbia University, one of the seven honorary degrees of D.Sc., was conferred on Dr. Aristides Agramonte, of Havana. In awarding the degree President Butler addressed Dr. Agramonte as follows:—

"Aristides Agramonte—Bachelor of Arts of the University of Havana, and Doctor of Medicine of Columbia University of the class of 1892; sole survivor of a famous group of scientists and public servants who, in order to test the theory of the transmission of yellow fever by mosquitoes, began the experiments on themselves; and who have lived to see your native island freed, largely through your own efforts, of its worst scourge; professor of bacteriology and experimental pathology in the University of Havana."

No one can fail to recall in this connection President Eliot's characterization of Dr. Walter

Reed, in conferring upon him the honorary degree of A.M. at Harvard in 1902, as "the army surgeon who planned and directed in Cuba the experiments which have given man control over that fearful scourge, yellow fever."

PLANS FOR A NATIONAL LEPROSARIUM.—Report from Washington, D.C., states that on June 4 two bills pertaining to leprosy were introduced into the national House of Representatives. One of these authorizes the surgeon-general of the United States Public Health Service to select an island in any insular or territorial possession for use as a national home for lepers, appropriating $150,000 for that purpose. The other bill appropriates $500,000 for the same purpose, the site for the leprosarium to be selected by the surgeons-general of the Army, Navy, and Public Health Service.

A CENTENARIAN.—Mrs. Anthony Lossaso, who died on June 7 at Paterson, N.J., is said to have been born in 1804 in Italy. She married her fifth husband in 1909.

THE ITALIAN QUINTUPLETS.—In the issue of the JOURNAL for May 28, we published a communication relative to the reported birth of quintuplets at Palermo in Italy. In the issue of *La Domenica del Corriere*, a Milan paper, for May 31, is a statement confirming this report, with a colored frontispiece showing the parents, the doctor, and five nurses holding the five babies.

BOSTON AND NEW ENGLAND.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending June 9, 1914: Diphtheria, 45, of which 2 were non-residents; scarlatina, 68, of which 9 were non-residents; typhoid fever, 3; measles, 168, of which 1 was non-resident; tuberculosis, 77, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 16.04.

FIFTIETH ANNIVERSARY OF BOSTON CITY HOSPITAL.—Invitations are issued by the Trustees of the Boston City Hospital to the semi-centennial observance of the opening of the hospital, which will be celebrated with appropriate exercises in the surgical amphitheatre on Saturday of this week, June 20, at 11.30 a.m. The twenty-fifth annual meeting of the Boston City Hospital Alumni Association will be held at the Copley-Plaza Hotel on the same day, at 6.30 p.m. Dinner will be served at 7 o'clock, immediately after the business meeting. Dr. Philip Coombs Knapp will preside. The following are the invited guests, some of whom will speak: The Trustees of the Hospital, His Excellency the Governor of Massachusetts, His Honor the Mayor of Boston, Hon. Samuel W. McCall, Major-General Hugh Bancroft, Herbert G. Woodworth, Esq., Dr. Josiah N. Hall, Dr. H. C. Baldwin, Dr. John G. Blake, and the President-elect of the Alumni Association.

LIVING CENTENARIANS.—Mary Everett, of Fort Fairfield, Me., is said to have been born in 1812. She recently made a journey alone to the West to visit her daughter.

Mrs. Lemuel Cox, of Malden, Mass., is said to have been born in that city in June, 1812. All of her seven children are deceased, but her own health remains excellent.

TWO VENERABLE PHYSICIANS.—It is a noteworthy fact, at this commencement season, that the oldest living graduate of both Harvard and Yale is a physician. Dr. James Lloyd Wellington, of Swansea, Mass., graduated from Harvard in 1838; and Dr. David F. Atwater, of Springfield, Mass., from Yale in 1839.

NEWTON HOSPITAL TRAINING SCHOOL.—The annual graduation exercises of the Newton (Mass.) Hospital training school were held in that city on June 4. The principal address was made by Dr. Joel E. Goldthwait, of Boston, and diplomas were awarded to 21 graduating nurses.

OPEN AIR SCHOOL ON CASTLE ISLAND.—Beginning the last week in June, an open air school will be maintained through the summer on Castle Island in Boston Harbor by the Boston Dispensary, the Boston Instructive District Nursing Association, and the Boston Society for the Relief and Control of Tuberculosis. This school, which is intended as a successor to the former one at Franklin Park, is designed not for children actually tuberculous, but for those predisposed to tuberculosis, whose resistances it is hoped by this measure so to strengthen that they may become capable of successfully avoiding subsequent infection.

MILK AND BABY HYGIENE NURSES.—It is announced that of the $2000, for which an appeal was made by the Boston Milk and Baby Hygiene Association in the issue of the JOURNAL for May 28, $1000 have already been raised, and additional nurses have in consequence been assigned to the milk stations in South Boston, East Boston, and the West End. Other nurses will be assigned as soon as the remainder is subscribed.

HOSPITAL BEQUESTS.—The will of the late Nellie H. Bonney, of Haverhill, Mass., which was filed in the probate court at Salem, Mass., on June 5, contains ultimate reversionary bequests of $5000 each to the Hale Hospital, Haverhill, and the Boston Floating Hospital.

The will of the late Esther F. Emerson, of Gloucester, Mass., contains a residual reversionary bequest for the foundation of a memorial hospital at Milford, Mass.

NEW YORK NOTES.

LEGACY BY DR. BRYANT.—By the will of the late Dr. Joseph D. Bryant, professor of surgery in the University and Bellevue Hospital Medical College, a trust fund of $1,000 is established for the benefit of New York University. The directions regarding it left by Dr. Bryant were as follows: "The income of this fund shall be devoted to instilling in the minds of the senior class the principles of ethics of the American Medical Association. This bequest is made in the belief that early admonition and the implanting of preventive means to seductive inclinations or dangers is the surest method of securing ethical practice in human affairs" Upon the death or remarriage of his widow, one-seventh of Dr. Bryant's residuary estate is to be given in trust to New York University, and one-seventh in trust to the New York Academy of Medicine. One contingent bequest of $10,000 is to be devoted to opposing the efforts of anti-vivisectionists in New York State.

BELLEVUE HOSPITAL.—The present house staff of Bellevue Hospital appears to be unusually rich in musical talent. On June 7 nine of its members, for the entertainment of the patients, gave on the hospital grounds an orchestral concert which was much appreciated by an audience of more than 1,200, including Dr. Brannan, president of the board of trustees, and Drs. O'Hanlon and Fleming, the medical superintendent and assistant superintendent of the hospital.

MORTALITY FOR WEEK ENDING JUNE 6, 1914.—There were 1291 deaths and a death-rate of 12.06 per 1000 of the population reported during the past week, as against 1447 deaths and a rate of 14.05 during the corresponding week of 1913, an absolute decrease of 156 deaths and of 1.99 points in the weekly rate, which is equivalent to a relative decrease of 213 deaths.

The following causes showed material decreases: measles, scarlet fever, diarrheal diseases under five years, digestive diseases other than diarrheal, acute respiratory diseases. Those causes showing an increased mortality were diphtheria and croup, whooping cough, typhoid fever, cerebrospinal meningitis, organic heart disease and violence. The mortalities from pulmonary tuberculosis, Bright's disease and nephritis, and diseases of the nervous system, were approximately the same as those for the corresponding week of last year.

Viewed from the point of age grouping there was a tremendous decrease in the mortality among infants under one year, there being 91 less deaths reported at this age. The mortality between one and five years of age was slightly lower, there being nine less deaths at this age period; between the ages of five and sixty-five years there was a decreased mortality of 85 deaths. The only age group that showed an increased mortality was that of over sixty-five years of age, there being 29 more deaths reported.

The death-rate for the first twenty-three weeks of 1914 was 15.15 per 1000 of the population, a decrease of .21 of a point compared with the corresponding period of 1913.

LONG ISLAND COLLEGE HOSPITAL.—At the annual meeting of the Association of Alumni of Long Island College Hospital at the Polhemus Memorial Clinic, on the evening of June 9, a striking announcement was made concerning the reorganization of the institution. A fifth year medical course has been adopted and the curriculum has been entirely changed to meet modern demands. Students will be accepted from the high school upon possession of a full medical student's certificate, and they will enter the preliminary year for instruction in chemistry, physics, biology, French or German, physiology and embryology. The freshman and sophomore

years will be devoted exclusively to the laboratory branches, and the various laboratories have been equipped with the latest and best apparatus. The junior year will include clinical work in medicine and surgery and daily dispensary work, while the fifth year will be devoted entirely to bedside work. Every clinical branch will have a full quota of resident full-time instructors.

Long Island College Hospital has at this time 300 beds and there is in course of construction a large wing which will give the institution 450 beds, making it one of the largest hospitals in New York. The clinical material in the hospital will be available for the students of the medical school, and the very close connection between the hospital and the college gives the students unsurpassed opportunities for bedside instruction. There has also been a considerable change in the faculty, and this reorganization, together with the addition of several full-time instructors, will give the institution a teaching staff of decided strength.

AWARD OF LUCIEN HOWE PRIZE.—It is announced that the Lucien Howe prize of the New York State Medical Society has been awarded to Dr. Mark J. Schönberg for his research work on ocular anaphylaxis.

Current Literature

MEDICAL RECORD.

MAY 30 1914.

1. LEVERETY, A. S. *A Clinical Study of Traumatic Nerve Paralysis.*
2. FREUDENTHAL, W. *The Management of Laryngeal Tuberculosis in Sanatoria and Private Practice.*
3. ROCKWELL, A. D. *Observations Based upon Forty-Five Years of Electrotherapeutic Work.*
4. DRUSKIN, S. J. *Cesarean Section. Three Methods of Performing the Operation, with Illustrative Cases.*
5. VANDEGRIFT, G. W. *Tobacco Amblyopia.*
6. PEASE, M. C. *The Provocative Wassermann Reaction.*
7. MUNRO, H. S. *The Prevention of Psychic Trauma.*
8. DICKINSON, G. K. *Divulsion of Arm and Scapula.*

NEW YORK MEDICAL JOURNAL.

MAY 30, 1914.

1. EINHORN, M. *Habitual Constipation and Its Treatment.*
2. WOHL, M. G. *The Present Status of Abderhalden's Reaction.*
3. CORNWALL, E. E. *Lobar Pneumonia.*
4. BISCH, L. E. *The Recognition of Mental Deficiency.*
5. WOODBURY, F. *The Treatment of the Insane in the Tropics.*
6. HINKLE, B. M. *Jung's Libido Theory and the Bergsonian Philosophy.*
7. VANDIVER, A. C. *The Legal Status of Trained Nurses in the Administration of Anesthetics.*
8. GUTTMAN, J. *Hydrorrhea Nasalis.*
9. GERHARD, S. P. *The Medical Colors.*
10. KLEIN, S. R. *Capital Punishment in the Electric Chair.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 30, 1914.

1. SIMON, C. E. *The Abderhalden-Fauser Reaction in Mental Diseases, with Special Reference to Dementia Precox.*
2. *JANEWAY, H. H. *Results of Radium in Cancer.*
3. *MCCASKEY, K. W. *The Autoserosalvarsan Treatment of Syphilis of the Central Nervous System.*
4. BURR, C. W. *Chronic Dementia, Cerebellar Ataxia and Epileptiform Convulsions in a Boy Caused by Ptomain Poisoning from Eating Canned Salmon.*
5. SULLIVAN, R. Y. *Pregnancy and Labor Complicated by Carcinoma of the Cervix Uteri.*
6. DAVIS, B. F. *Paraffin Cancer. Coal and Petroleum Products as Causes of Chronic Irritation and Cancer.*
7. ROYSTER, H. A. *Elephantiasis and the Kondoleon Operation.*
8. WERELIUS, A. *Traumatic Detachment of the Bladder from Symphysis Pubis, with Complete Severance of Urethra. Use of the Labia Minora as a Substitute for Necrosed Anterior Vaginal Wall.*
9. REYNOLDS, H. S. *A Case of Acute Nicotin Poisoning of Peculiar Origin.*
10. STIMSON, G. W. *Deaf-Mutism (Labyrinthine Deafness) as a Result of Purpura Hemorrhagica.*
11. KING, J. J. *A Satisfactory Local Anesthesia for the Submucous Resection of Nasal Septum.*

1. Simon finds that a sex gland reaction, such as the Abderhalden test, may be obtained in nearly, if not all, cases of dementia precox at some stage of the disease, but that the reaction is not specific of dementia precox, as Fauser would have us believe. The author quotes a large amount of information from the literature and the paper is a well written treatise on this subject.

2. Janeway, considering the results so far reported on the treatment of cancer with radium, especially those of Wickham, makes the definite statement of its value about as follows: All operable cancers should be operated on immediately without delay. This is an absolutely fixed rule. Radium has no place in this type of growth. Radium confines its value to superficial growths, for it has been found that its more fully penetrating rays may even stimulate the growth of cancer cells situated deeply beneath those under treatment.

3. McCaskey's article is a description of refinements in technic of administration. [E. H. R.]

THE LANCET.

MAY 9, 1914.

1. ORMEROD, J. A. *The Lumleian Lectures on Some Modern Theories Concerning Hysteria. Lecture III.*
2. *ELLIOTT, T. R., AND DINGLEY, L. A. *Massive Collapse of the Lungs Following Abdominal Operation.*

3. *SWAN, R. H. J. *Tumors of the Urinary Bladder.*
4. *JEFFERSON, G. *Death from Hyperacute Streptococcal Infection (Streptiœmia) Following Radical Removal of Cervical Tuberculous Glands with Sinuses.*
5. SHEILL, S. *Congenital Icterus.*
6. CORNER, E. M. *The Rôle of the Crucial Ligaments in Hemarthrus and Injuries to the Knee.*
7. WELCH, H. V. *A Case of Carcinoma of the Breast in a Male.*
8. VERDON, H. W. *A Note on the Aspiratory Function of the Heart.*

2. The writers have studied eleven cases of post-operative collapse of the lung and discuss this condition. Each had muco-purulent expectoration and high fever preceding the collapse, thereby closely resembling pneumonia. There is cardiac displacement toward the affected side and compensating emphysema of the sound lung. Pain and cyanosis may develop. At first there is dullness, immobility, weak breath sounds on the affected side, which later becomes bronchial. Usually, all signs vanish in two to three days, but in some cases a true pneumonia may develop. Expectorants should be given, and deep breathing encouraged.

3. Swan classifies, discusses and describes the various tumors of the bladder and remarks briefly on prognosis and treatment.

4. Jefferson describes a fatal case of operation for removal of tuberculous cervical glands and calls attention to the fact that this operation is not free from danger, particularly if discharging sinuses are present. [J. B. H.]

MAY 16, 1914.

1. WATERSTON, D. *Arris and Gale Lecture on the Development of the Heart in Man in Relation to Its Functional Activity.*
2. BATTLE, W. H. *The Diagnosis of Appendicitis.*
3. *PRITCARD, E. *Common Errors in the Treatment and Diagnosis of Dietetic Disorders in Infants.*
4. MOULLEN, C. M. *A Case of Sub-total Gastrectomy Performed for Cancer of the Stomach Five Years Ago.*
5. HICKS, B. *A Pedunculated Intrabronchial Tumor (Sarcoma) Causing Bronchiectasis.*
6. *WALTON, A. J. *A Consideration of Some Cases of Exophthalmic Goitre Treated by Operation.*
7. WENGLOWSKI, R. *Malignant Tumors of Bones: a New Method in Conservative Operative Treatment.*
8. CUMBERBATCH. *The Influence of the X-rays on Some Cases of Persistent Suppuration.*

1. Pritchard discusses in an interesting and practical way the subjects of diarrhea, constipation and colicky pains in infants, the mistakes frequently made in the treatment of such conditions and the best methods of procedure.

6. Walton discusses the following postulates as to exophthalmic goitre: (*a*) That the disease is due to an excess of thyroid secretion. (*b*) That the results of medical treatment are unsatisfactory. (*c*) That the operative mortality is not unnecessarily high. (*d*) That the results of surgical treatment are very satisfactory. (*e*) That the danger of post-operative myxedema is slight. He presents in detail ten cases on which he has operated. [J. B. H.]

MAY 23, 1914.

1. *PINCH, A. E. H., AND ALTON, W. L. S. *A Report of the Work at the Radium Institute from Jan. 1 to Dec. 31, 1913.*
2. *INMAN, A. C. *The Diagnosis of Pulmonary Tuberculosis: the Value of Besredka's Antigen in the Complement Fixation Test for Tuberculous Disease.*
3. LAKE, R. *Remarks on the So-called Re-education of the Deaf.*
4. OERTEL, H. *A Contribution to the Knowledge of Experimental Nephritis.*
5. MCDONAGH, J. E. R. *Observations on Syphilis of the Central Nervous System, with a Note on Salvarsan.*
6. THOMAS, J. L. *Note on a New Combined Method of Prostatectomy.*
7. ROTH, P. B. *A Case of Congenital Defect of the Ulna.*
8. WARD, G. R. *Secondary or Symptomatic Leukemia.*
9. HOUSTON, T., AND THOMSON, W. W. D. *Bacillus Coli as a Cause of Septic Onychia.*
10. REYNOLDS, W. G. *A Case of Tetanus Treated with Subcutaneous Injections of Carbolic Acid. Recovery.*
11. RAMSAY, W. *Nilton as a Therapeutic Agent.*

1. This report of the Radium Institute is a detailed tabulation of cases and results obtained at the Radium Institute during the past year. It presents results on 972 cases of various kinds.

2. This work of Inman's will be of great interest to scientists and to those specially interested in tuberculosis. A repeated negative reaction indicates the absence of an active lesion. It is distinctly a laboratory procedure. [J. B. H.]

BRITISH MEDICAL JOURNAL.

MAY 9, 1914.

1. *LAZARUS-BARLOW, W. S. *The Cause and Care of Cancer Viewed in the Light of Recent Radiobiological Research.*
2. *RIDDELL, J. R. *Radium in the Treatment of Malignant Disease.*
3. *CLARKE, J. M., AND LANSDOWN, R. G. P. *Intramedullary Tumor of Spinal Cord; Treatment by Laminectomy and Application of Radium.*
4. *HERNAMAN-JOHNSON, F. *On the Respective Advantages and Disadvantages of X-rays and Radium in the Treatment of Cancer.*
5. GRACE, J. J. *Painful Shoulders and Their Treatment by Physical Measures.*
6. MARSHALL, G. *Interlobar Empyema.*
7. SOUPER, H. R. *Veronal Poisoning; Recovery after One Hundred Grains.*

1. Barlow discusses the cancer problem and its relation to radium in great detail, and is evidently a firm believer that radium will prove of constantly increasing benefit in curing and alleviating cases of this disease. The class of cases in which radium should be used, precautions to be taken, and other practical considerations are given in detail.

2, 3, and 4. These are short articles describing the use of radium in specific cases of cancer of various forms and the results obtained, as well as the relative advantages of radium and x-rays in such conditions. [J. B. H.]

MAY 16, 1914.

1. MACKENZIE, J. *The First George Alexander Gilson Memorial Lecture.*
2. *RUSSELL, W. *Phenomena Attributable to Spasm of Cerebral Vessels (Angiospasm).*
3. AULD, A. G. *Oxygen Want and the Means of Its Relief.*
4. *SHAW, B. H. *The Relation between Epilepsy and Tuberculosis.*
5. WHELAN, J. H. *Strychnine-Tuberculin Treatment of Hospital Tuberculous Cases.*
6. *LECKIE, A. J. B. *The Cutaneous Tuberculin Reaction of Von Pirquet.*

2. Russell discusses angiospasm, its cause, diagnosis, symptoms and treatment in an interesting and practical way.

4. Shaw seems to feel that epilepsy may be a manifestation of an early or latent tuberculous infection. He has found an amazingly high percentage of tuberculous infection among epileptics and is of the opinion that there must be therefore some relation between the two conditions. His remarks are interesting, but need confirmation.

6. Leckie, as a result of his investigations, concludes that the cutaneous tuberculin reaction is of no prognostic or diagnostic value, especially in adults and that cases of rheumatism give more positive results than tuberculous individuals, and that early and late reactions have no clinical significance. (These remarkable statements are interesting, if true.) [J. B. H.]

May 23, 1914.

1. *Lockwood, C. B. *The Objections to the Incomplete Operation for Cancer of the Breast.*
2. *Pinch, A. E. H. *A Report of the Work Carried Out at the Radium Institute, London, in 1913.*
3. Hadley, E. C. *A Case of Multilocular Cystic Disease (Cystadenoma) of the Pancreas.*
4. Pannett, C. A. *Acute Obstruction of the Small Intestine.*
5. Porritt, N. *Pituitrin in Post-operative Intestinal Stasis.*
6. Fenwick, W. S. *Ileo-colic Intussusception in a Child of Four Months; Resection; Lateral Anastomosis.*
7. Corner, E. M. *Further Experiences in the Treatment of Imperfectly Descended Testicles.*
8. Candler, A. L. *Experimental Proof of the Value of a Mask over the Surgeon's Mouth During Operations.*

1. Lockwood urges the complete radical operation in all cases of breast cancer and presents details of results obtained in 25 cases.
2. *Cf., Lancet,* May 23, 1914. [J. B. H.]

Berliner Klinische Wochenschrift.

No. 16. April 20, 1914.

1. Russell, B. R. G., and Bullock, W. E. *The Length of Life of Carcinoma Cells at 37° C.*
2. Friedenthal, H. *Infant Feeding on a Physiologic Basic with Friedenthal's Modification and Vegetable Powder.*
3. *Harttung, H. *Kidney Infection and Retention of Urine.*
4. Plesmann. *The Treatment of Bronchial Asthma and Chronic Bronchial Catarrh by Inhalations (with an Atomizer) of Glycerine.*
5. Heller, J. *The Microscopic Anatomy of the Oldest Preserved Mammalian and Human Skin (Mummies, etc).*
6. Grumme. *On the Theory of Graves' Disease, Myxedema, Cretinism, and Endemic Goitre, Hyper- and Hypo-thyroidism.*
7. Keetmann, B. *The Tissue Absorption of Beta, Gamma, and Roentgen Rays.*
8. Weckowski. *A Rotatory Apparatus for Giving Radium Emanations.*
9. Meltzer, S. J. *The Present Status of Intratracheal Insufflation.*
10. Böhm, M. *Orthopedic Measures for the Children of the Berlin Parish Schools.*

3. Harttung reports a series of over sixty experiments in guinea-pigs, in which he caused an artificial hydronephrosis on one side by obstructing the ureter, and then observed the reaction of the diseased, in comparison with the well kidney, to various infections. In one set of cases he noted that after injection of living bacteria into the blood stream the uninjured kidney would show no pathological changes, while the other would have broken down in a suppurative process. The whole work emphasizes the great importance of hydronephrosis, whether congenital or acquired, in the etiology of renal infections. [R. H. M.]

Archiv für Klinische Chirurgie.

Vol. 104. Part I.

1. *Lick, E. *Early Operation in Basedow's Disease.*
2. Eden, R., and Rehm, E. *Autoplastic Fat Transplantation for Neurolysis and Tendinolysis.*
3. Iwasaki, K. *Primary Sarcoma of the Gall-bladder.*
4. Carnelli, R. *Traumatic Perforation with Peritonitis in a Walking Typhoid Case. Observations on Slight Abdominal Injuries.*
5. Hofmann, W. *Functional Tests for the Heart and Their Practical Value for Surgeons.*
6. Scultze, E. O. P. *Habitual Dislocation of the Shoulder. Clinical and Experimental Work.*
7. Gontermann. *Hernia Supravesicalis Cruralis, with Involvement of the Ligamentum Umbilicale Laterale in the Hernial Sac.*
8. Scheuermann, H. *Operative Treatment of Movable Kidney. Observations on One Hundred and Eighty-Nine Cases Operated by Rovsing's Method from* 1897-1911.
9. Eden, R. *Joint Chondroma.*
10. Berezniegowski, N. *The Use of the Isolated Omentum for Control of Liver Hemorrhage. Experimental.*

1. Lick believes that early operation is indicated in all definite cases of Basedow's disease, as soon as the diagnosis is made. Thus the other organs (heart, liver, kidneys, etc.) are spared the irreparable injury which they would otherwise sustain. Operation in early stages is easier, and can be made more complete. The danger of recurrence is thereby lessened, and the exophthalmos will completely disappear. [G. G. S.]

Die Therapie der Gegenwart.

March, 1914.

1. Schreiber, E. *The Present Status of Active Immunization against Diphtheria (von Behring's Method.)*
2. Klemperer, G., and Jacoby, M. *The Treatment of Cystinuria.*
3. Lewin, C. *Radium Therapy in Carcinoma of the Esophagus and Cardia.*
4. *Jakobi, J. *The Clinical Value of "Adigan," a New Digitalis Preparation.*
5. Blumenthal, F., and Lewin, C. *Further Studies on the Treatment of Sarcoma in Rats with Extracts of the Same Kind of Tumors.*
6. Dohrn, M. *Emil Fischer's Syntheses of Purin Glucosides.*
7. Hoefer, S. *Progress in the Knowledge and Treatment of Diseases of Children.*
8. Alterthum, E. *The Treatment of Gynecological Conditions with Yatren (Tryen).*
9. Cassel, H. *Experiences with Narcophin.*
10. Kärcher, M. *The Action of Digifolin.*
11. Schattaner, F. *On Dermotherma, a Formaldehyde Camphor Ointment.*
12. Gerson, K. *The Prevention of Flat-Foot in Certain Vocations.*

4. Jakobi reports from a study of adigan that in a limited class of cases it gives good results and does not cause untoward symptoms. Adigan is made in tablets of 1 c.c. each, the usual dose being 2 to 5 tablets a day. [L. D. C.]

APRIL, 1914.

1. PETERSEN, O. H. *The Neer Methods of Bloodless Treatment of Tuberculosis of the Cervical Glands.*
2. HEINEMANN, O. *The Curability of Multiple Abscesses of the Liver, and Their Diagnosis.*
3. SUSSMANN, M. *The Technic of Gastroscopy.*
4. HEIMANN, F. *The Serum Treatment of the Dermatoses of Pregnancy.*
5. POLLAND, R. *The Treatment of Syphilis with Embarin.*
6. LOEB, W. *The Phenoval Content of the Body.*
7. HOEFER, S. *Progress in the Knowledge and Treatment of Diseases of Children.*
8. FRANKE, F. *A Contribution to the Treatment of Crural Ulcers.*
9. STEINER, F. *Permanent Dressings.*
10. *FROELICH, E. *A New Hypnotic,—Dial-Ciba.*

10. Froelich finds dial-ciba an agreeable and efficient hypnotic. One tablet of 0.1 gm. is sufficient in ordinary cases of insomnia. In nervous subjects 0.15 gm. will induce sleep of about seven hours' duration. Two to two and a half tablets are sometimes necessary. Post-hypnotic effects are less likely to occur if the drug is given moderately early in the evening. It is absorbed better if given dissolved in hot water or weak tea. [L. D. C.]

REVUE DE MÉDECINE.

APRIL, 1914.

1. *COUCHOND, P. L. *Kubisagari (Gerlier's Disease).*
2. MOLLARD, J., AND DUMAS, A. *Gallop Rhythm in the Course of and During Convalescence from Typhoid Fever.*

1. The "Maladie de Gerlier" was first met on the Franco-Swiss border. It was described as an affection, prevalent in that locality alone, presenting during the summer months periodic attacks of localized paresis. The muscles involved in the characteristic cases were those of the neck and lids, and less frequently the arms and legs. Gerlier describes the three stages graphically as follows: the first represents the "drunken man," whose unsteady gait is helped by the downcast eye; the second, the head and body are inclined to the earth, much as the peasants in Millet's Angelus; the third shows only the ptosis, so that the individual appears to sleep while standing.

In later years the same syndrome has been observed in certain of the countries of Northern Japan. Here the name kubisagari is used, because of the typical attitude of those afflicted. Miura lays especial stress upon the periodic appearance of the following symptoms: ptosis, paresis of the extensors of the neck and back, paresis of the arms, and paresis of the lips, tongue, and the muscles of deglutition.

The observations of Miura and Takemura show a wide variety of cases of this interesting, but rare and closely confined disease. The latter was able to isolate from the spinal fluid of one patient, suffering from an acute attack, a small, gram-negative micrococcus. Subcutaneous injections of this organism produced in a great majority of instances in cats symptoms directly correspondent with the human form of the disease. In only one instance could the same organism be recovered from the spinal fluid of a cat so affected. The bacteriological findings, while by no means conclusive, are encouraging and indicate the line of future work in connection with this disease. [L. H. S.]

REVUE DE CHIRURGIE.

APRIL, 1914.

1. *QUÉNU, E., AND COSTANTINI, H. *Indications for Intestinal Resection in the Radical Cure of Certain Herniae.*
2. *WALTER-SALLIS, J. *Non-Biliary Pancreatitides (Conclusion).*
3. *HARDONIN, P. *Clinical and Experimental Study on Traumatic Backward Dislocations of the Knee. (Conclusion.)*

1. The authors report a number of illustrative cases and conclude that, apart from complications, such as strangulation and gangrene, enterectomy may be indicated in herniae with a neoplastic or tuberculous content and in certain adherent herniae.

2. The writer reports 12 cases of his own observation and experience, and collects 45 others from the literature.

3. In conclusion, Hardonin summarizes a total of 79 collected cases, arranged according to his method of classification and illustrative of the types of backward knee dislocation. [R. M. G.]

Correspondence.

PARIS LETTER.

THE MEDICAL ATMOSPHERE OF THE RENAISSANCE AS PORTRAYED IN SOME EARLY FRENCH WRITERS.

II. MAÎTRE FRANÇOIS RABELAIS.
(1540–50, Circa.)

(From Our Special Correspondent.)

"Heureux le medicin qui est appelé sus la declination de la maladie!" (III.41.)

PARIS, 1914.

Mr. Editor: To undertake to write about such an intellectual colossus as Rabelais is impossible without a certain feeling of misgiving, for it is lamentable to be conscious of being unequal to one's subject, whose extent in this instance is infinite, Rabelais' range of knowledge seems, for his times, practically universal. The first fifteen years of his adult life were spent in convents, where he acquired his marvellous familiarity with the Greek and Latin classics, and an insight into the natural sciences, botany, etc., and astrology. He then laid aside the habit and undertook a round of the different universities of France, studying law, medicine and the liberal arts, ending up finally as a physician. The latter capacity led to his being attached to the embassies of various exalted personages to Italy, Rome and the Pope,—all of which ultimately gave him a breadth of view and field of experience quite out of the ordinary for his period.

Unfortunately, Rabelais is little known to the general reader. His prose is almost untranslatable, and if he is taken in the original the student is rebuffed by a style such as was never before seen in print, and by what seems, to us at least an endless amount of tedious detail. It is, I think, the common custom to look on Rabelais as a foul-mouthed, bibulous ribald. Never was there a grosser error. A man whose early education was acquired in learned and refined surroundings, whose constant frequentation was with cultivated professional men, and who was associated during his latter years with the most distinguished representatives of his country, could have had none of these characteristics. The language of his writings, is to be sure, something awful; it is strange that the very paper on which it stands does not turn red with dismay. Thus a friend of mine, a prominent divine, on inheriting an old and valuable edition of Rabelais, promptly put it in the fire in horror after only looking inside the covers! But this could never have been his natural mode of expression. It was assumed for a purpose, possibly to appeal to the masses. The speech of the people in France, even



STATUE OF RABELAIS AT CHINON.

today, is,—let us say "free," to a degree; listen to two cabbies on the street having a heart-to-heart unbosoming in a dispute, and you will have difficulty in finding anything more lurid even in Rabelais' astounding vocabulary. There is only one way of going at Rabelais,—to read him in the original, without expurgation, and to keep at him until you get quite used to his terrible style and pass through it to the riches concealed beyond. To resort to a simile that would certainly have appealed to our author, would it be rational to refrain from enjoying the contents of a bottle of rare old wine, simply because it was coated on the exterior with a thick layer of dirt, mold and cobwebs?

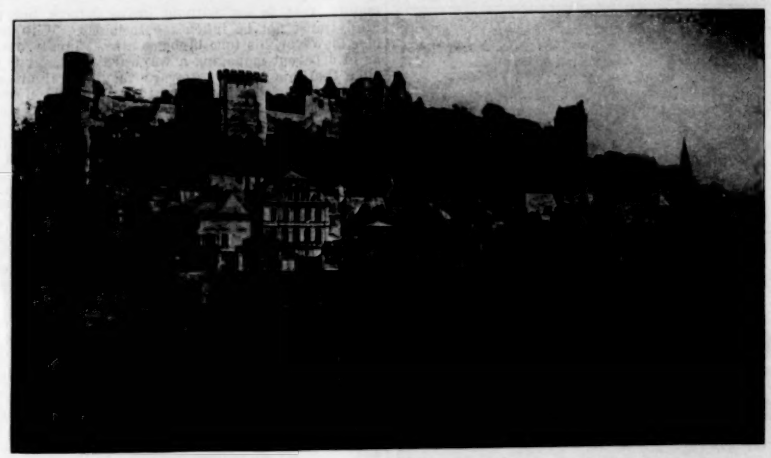
This remarkable confrère of ours is generally cited as the leading exponent of the art of using the most withering satire without a particle of passion or personal *animus* appearing in it,—a feat difficult above all others. Each of the liberal professions comes in for its share in turn, the Church, the Sorbonne, Medicine, and in particular Law; anything so appalling as his repeated onslaughts on his brethren of the legal profession I have never read. Yet in all of this the reader looks in vain for any evidence of concealed rancour or vengeance; he seems to have criticized and condemned purely because he saw the flaws and knew they deserved to be held up to opprobium. He appears to have been altogether ahead of his times; it would not be easy for a person, even nowadays, to take a more just view of the foibles of the first half of the 16th century.

It is in a way a consolation that of the four callings named, Rabelais is least severe on medicine; let us take this straw to our bosoms and be thankful for it such as it is! Law he simply reduced to pulp with a sledge-hammer and then cast that pulp into a furnace at white-heat. When he finished, there was nothing. His touch was that of the unflinching judge who, called on to consider a case absolutely bad in all particulars, says so in the plain and unmistakable language suited to the occasion. With the Church and the Sorbonne, on the other hand, his satire nearly approaches good-humor. He gives the impression that he is here dealing with a weak side of humanity, that is not without grave defects, but that really must not be taken too seriously. With medicine, however, his tone becomes almost kindly, joking, as of a parent managing a wayward child. It is possible that his leniency toward the medical art may be due to the fact that he considered himself in reality a physician, all of his later work being signed maître François Rabelais, docteur en medicine; but the fact remains that with one exception most of his little flings at our noble profession border rather on the joke-province than on that of satire. In the fifth book, in his vitriolic diatribe on the lawyers in the guise of the chasfourrez, he speaks of the "ignorance, impudence and imprudence of physicians, surgeons and apothecaries"; but the context here shows beyond peradventure that in all this fulmination of the Gueux-de-bien he was using the strongest terms at his command, and that since he wished to prove that the lawyers were the blackest of the black, the necessities of the case demanded that he should make his contrasts as sharply outlined as possible.

On leaving convent life for the universities he first went to Montpellier with the idea of taking up medicine, "mais il considera que l'estat estoit fascheux par trop et melancholicque, et que les medicins sentoyent les clysteres comme vieulx diables." That is more his real tone in dealing with the profession. Farther on he remarks: "Consider what a strange world this is: we entrust our souls to the theologians, who for the most part are heretics; our bodies to the physicians, who all abhor medicine and never take any; and our belongings to the lawyers who never go to law among themselves." The second phrase in this sentence Pantagruel accounts for as follows: "I can only approve of it, as I note that physicians lay so much stress on prophylaxis and precaution as regards their own health, that they stand in no need of curative treatment by means of drugs." It must be admitted that there seems a surprising amount of sound common sense in all of this, for the period.

As regards general hygiene, Rabelais is a strong partisan of having the chief meal at night, and of eating only sparingly at noon, "no more than sufficient to stay the clamours of the stomach . . . which is the only real way to live, based on good and sound medical precepts,—whatever a lot of fool doctors brought up among the Sophists may say to the contrary." So this point was in dispute even in those days! In the discussion between Frère Jean and Gargantua as to the advisability of drinking wine early in the day, the latter affirms that the practice is in complete disaccordance with medical teaching. This, however, is as good as no argument at all, in the eyes of the monk, who forthwith crushes his opponent with the following reason for not paying attention to what the doctors say: "Cent diables me saultent au corps s'il n'y a plus de vieulx hyvrognes qu'l n'a de vieulx medicins!" and he closes the discussion with "Mais, *venite apotemus!*" The jolly friar had concluded a most practical pact with his digestive organs, that will awaken feelings of envy in many a bosom, and that he unfolds in these terms: "I have arranged matters with my appetite in such a way that it always goes to rest when I do, and to this end I take the measures suitable during the day; but on the other hand it is equally ready to get up when I do."

Since we have mentioned the taking of wine, which occupies such a prominent part in all of Rabelais,—no action ever taking place without all hands first indulging in a drink,—and which has given rise to the idea that our author was a perpetual tippler, I should like to unburden myself on this point, which I have been at some pains to investigate personally, having made several trips to Rabelais' country, the Chinonais, and sampled conscientiously the different wines of the region. I do not believe that there are any more grounds for considering Rabelais as a tippler, than as a scurrilous debauchee, as mentioned in the early part of this article, and for the reasons there given; still, this unceasing introduction of wine-



THE ANCIENT TOWN AND CHATEAU OF CHINON, ON THE VIENNE IN TOURAINE.

drinking throughout his works does require some explanation.

The French tongue has two words to describe the man who enjoys food, *gourmand* for him who merely "stokes" his stomach, and *gourmet* for the eater of refined and delicate taste. Now Rabelais was a *gourmet* in drinking, what they call a *fin palais*, in connection with the fermented juice of the grape. This is apparent in many a passage, thus: "le noble pontife (evesque d'Auxerre) aymoit le bon vin, comme faict tout homme de bien"; again: "vous mesmes, monsieur le prieur, aymez boyre du mielleur. Sy faict tout homme de bien; jamais homme noble ne hayst le bon vin; c'est un apophthegme monachal"; and there is an unmistakable accent of sincerity in the Friar's exclamation: "Que Dieu est bon, qui nous donne ce bon piot!" That cry came straight from the heart. Elsewhere, in one of his inimitable scenes, he refers to wine as "eau beniste de cave." So there is no doubt that Rabelais was not above appreciating a good thing when he got it. But there remain two points to clear up: how it was that his characters stood the amount of wine they were always imbibing; and why it was that Rabelais' constant refrain is that the wine must be cool.

As regards the first question,—when you have made a thorough study of the wines of the Chinon region you soon see that though very smooth and pleasant to the palate they have no bouquet and but a low degree of alcohol; it consequently seems probable that for a person of the district, accustomed to them from birth, the amount he could imbibe would be limited purely and simply by the quantity he could hold, and that the alcoholic effect on him would be more or less nil. This would seem to afford a satisfactory explanation of the fact that Rabelais' characters never move, morning, noon, or night, without first taking a copious libation of wine. But as regards the second point, the explanation is less easy. In Book I, Chap. 6, our author says that "a man of good sense always believes what he is told and what he finds in print." Now, although some people might dispute the validity of this assertion, I followed it in Rabelais' case, and in view of his constant cry: "beuvez fraiz si faire se peut," I took his advice at the letter, although the best Chinon wine is red, and it is against all rules to drink a red wine cold. I first landed at Chinon one winter's night, Christmas eve, in fact; but encouraged by a bright, cheerful dining room, and by finding comfortable central-heating in a little French provincial inn, I decided to begin my wine investigations at once and had a bottle up straight from an icy cellar. Beuveurs, mes frères,—*never* do that! Let my experience suffice. I spent the remainder of the evening nursing a hot water bag, in the hope of thawing out that awful lump beneath my chest.

This not seeming quite according to schedule I on the next day visited the Devinière, the farm where Rabelais was born, and lunched in a neighboring tavern, where we again had a red wine, which, after sampling, we carefully warmed before the fire. Rabelais says: "O Lachryma Christi! c'est de la Devinière. O, le gentil vin blanc, ce n'est que vin de taffetas." Now the white wine of the Devinière of 450 years ago may have been all sorts of things,—that I am not prepared to dispute; but to apply such terms to the product of today, is to indulge in what the rhetoricians call hyperbole, I believe. However, this does not prevent the fact that really first-class Chinon wine is a very pleasant drink. It may possibly be that in Rabelais' day the Chinon vineyards produced chiefly a white wine, which, I need hardly say, is usually consumed cold. I am afraid that I have been somewhat lengthy on this point; but it has been one that has preoccupied me considerably. There is a final detail in Rabelais connected with eating and drinking that is new, to me at least: that pears and cheese go remarkably well together. This I had never observed.

From an anatomical standpoint I should be glad if any reader can tell me why in Rabelais the medius is so frequently called "the medical finger"; I suppose there is some very simple explanation of this fact, but I do not know it. Rabelais also raises another question that had never occurred to me: that whereas some of our senses (sight, taste) are furnished by nature with means of protection (lids, lips), others, and in particular the sense of hearing, are not, but remain open to influences from the exterior all the time. This whole passage (III. 16) is very curious. Alexander the Great, victorious in Persia, was regretting that his people in far away Macedonia would not be able to hear of his prowesses until after so long a lapse of time, when a man presented himself before him and claimed to have invented a means whereby Alexander's fellow countrymen could be informed of the great news in the re-

markably short space of five days. This idea seemed to Alexander so uncanny that he refused even to listen to the man, which Rabelais reproves: "What would it have cost him to hear and learn what the man had invented? Nature appears to me to have created our ears open not without grounds . . . so that at all times, at night, we can constantly hear, and by hearing, constantly learn; for it is the sense above all others the most apt to instruct us."

As regards insomnia Rabelais puts into the mouth of his *enfant terrible*, Frère Jean, views that are sadly unorthodox. Gargantua being quite unable to fall asleep, the Friar remarks: "personally I never sleep really well except during a sermon or at prayers. Let us commence, you and I, the seven psalms, and see whether you are not soon asleep." And beginning the first psalm they were both sound asleep by the Beati Quorum! For seasickness Rabelais advises copious libations: "They all drank the travellers' health, and all the travellers drank theirs, which was the explanation of the fact that none of the assembly became seasick." The popular remedies of the day appear to have been: to drink seawater, pure or mixed with wine, for several days before going on board; to eat quinces, lemonpeel, or take pomegranate juice; to make a long fast; or to cover the stomach with paper,—"or otherwise to follow the directions which silly physicians give to those going to sea." Perhaps when next you go on board the good ship Mauretania you may like to try some of these novel remedies?

As regards the treatment of luës, it was that of the times,—sweating and inunctions, carried to the point that the patients teeth rattled in their heads like the keys of an organ, and they foamed at the mouth with excess of saliva. But where Rabelais really becomes curious is in his views as to the frequency of this disorder. When Epistemon returns from his brief sojourn in Tartarus, and speaks of the various occupations at which its inhabitants were kept busy, he says that Pope Sixtus' duty was to administer these very inunctions. "What, said Pantagruel, do they have that disorder *there*?" "Certainly, replied Epistemon; I never saw so many cases before: there are more than a hundred million of them; for, believe me, those that do not have it in this world get it in the next."—which is not a very reassuring outlook. In another passage he refers to the first known case of luës, contracted "by not taking his wine cool in summer!" This special etiology had not yet, I think, been reported. In Book II, Chap. 33, is an account of Pantagruel's encounter with the specific catarrh connected with Neisser's micro-organism. In French this scene goes all right; but I do not quite see how to turn it into English, so inquisitive readers will have to look it up in the text. But his explanation in this connection of the properties and nature of mineral springs, is certainly orginal, if nothing else.

In addition to the possibility of an early knowledge of wireless telegraphy, darkly hinted at in the story related concerning Alexander the Great, the question arises whether our confrère Carrel is entitled to quite so much credit for the originality of his researches as is customarily accorded to him. Thus, after one of their many combats Epistemon was found dead with his head completely severed from his body. Panurge, however, was equal to this predicament, as the victim was still quite warm. Clasping the head to himself so that it should not be exposed to the wind or lose heat, he carefully washed both surfaces of section with fine white wine, powdered and anointed it, and then adjusted vein to vein, nerve to nerve, and spondyle to spondyle, so that there should be no torticollis. He next placed 15-16 sutures all around, to prevent its falling off again, and ended up by an application of what he called "resuscitating ointment." Wherupon the patient breathed, opened his eyes, etc., and was given a big draught of white wine and burnt sugar,—naturally; it would have been strange if they had not introduced some more white wine into the scene somewhere, all hands having full right to refreshments after such a remarkable operation as that!

The list of Rabelais' curious views on medicine is hereby by no means exhausted, but fear that the reader's patience *is;* so I will close by the passage in which he refers to the question of physician's fees. His description of this scene is a pearl, but it will have to be given in the original: "puys s'approcha de luy et luy mist en main sans mot dire quatre nobles à la rose. Rondibilis les print très bien, puis luy dist en effroy, comme indigné: Hé, Hé, Hé, Monseiur, il ne falloit rien. Grand mercy toutesfoys. De meschantes gens jamais je ne prens rien. Rien jamais des gens de bien je ne refuse. Je suys tousjours à vostre commendement.—En poyant, dist Panurge? Cela s'entend, respondit Rondibilis!"

And with this shrewd piece of observation we will end this all too summary sketch of this, one of the most remarkable men our profession has ever included in its ranks.

"Q."

Miscellany.

UNITED STATES CIVIL-SERVICE EXAMINATION.

ASSISTANT EPIDEMIOLOGIST, MALE.

July 6, 1914.

The United States Civil Service Commission announces an open competitive examination for assistant epidemiologist, for men only. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the Public-Health Service, at salaries ranging from $2000 to $2500 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to conduct laboratory studies of disease, to make epidemiological surveys, to determine the prevalence and causation of epidemics, and to recommend measures to prevent and control outbreaks of disease.

It is desired to secure persons thoroughly competent in the various branches of sanitary bacteriology, and especially in isolating the typhoid bacillus from infected persons and materials.

An educational training equivalent to that required for graduation from a medical school or college of recognized standing, and at least three years' experience in epidemiological work under Federal, State, or local authorities, and experience in laboratory technic, especially in regard to tyhoid fever, are prerequisites for consideration for this position.

Applicants must have reached their twenty-third but not their fortieth birthday on the date of the examination.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Form 304, and special form, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Post Office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse, New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commis-

sion, San Juan, P. R. No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission at Washington, with the material required, prior to the hour of closing business on July 6, 1914. The exact title of the examination as given at the head of this announcement should be stated in the application form.

BACTERIOLOGIST (MALE).

July 8, 1914.

The United States Civil Service Commission announces an open competitive examination for bacteriologist, for men only, on July 8, 1914. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position at salaries ranging from $1200 to $2000 a year, in the Bureau of Chemistry Department of Agriculture, for duty both in Washington, D. C., and in the field, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to examine bacteriologically food products which are subject to the food and drugs act in order to determine their sanitary condition.

An educational training equivalent to that required for a bachelor's degree or an M.D. degree from a college or university of recognized standing, including at least two years' training in bacteriology, is a prerequisite for consideration for this position.

Applicants must have reached their twenty-first but not their fortieth birthday on the date of the examination.

Applicants for this examination may be examined at any place at which it is held, regardless of their place of residence; but under an act of Congress only those who are examined in the State or Territory in which they reside and who have been actually domiciled in such State or Territory for at least one year previous to the date of the examination, will be eligible for appointment to a position in the apportioned service in Washington, D. C.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for application Form 1312, stating the title of the examination for which the form is desired, to the United States Civil Service Commission, Washington, D. C. No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission in Washington in time to arrange for the examination at the place selected by the applicant. The exact title of the examination as given at the head of this announcement should be stated in the application form.

SOCIETY NOTICES.

AMERICAN PROCTOLOGIC SOCIETY.—The sixteenth annual meeting of the American Proctologic Society will be held at Atlantic City, N. J., on June 22 and 23. Executive Council meets 11 A.M. First Regular Session at 2 P.M. Annual Address of the President—subject: "The Future of Procto-Enterology," Dr. Joseph M. Mathews, Louisville, Ky. A program of 23 papers has been arranged.

ALFRED J. ZOBEL, M.D., *Secretary.*

San Francisco, Cal.

AMERICAN MEDICAL EDITORS' ASSOCIATION.—The forty-fifth annual meeting of the American Medical Editors' Association will be held at Atlantic City, N. J., on June 22, 1914, at 9 A.M. A literary program of 14 papers has been arranged. The dinner of the Association will be on Tuesday, June 23, at 7. P.M.

JOSEPH MACDONALD, JR., M.D., *Secretary.*

New York.

AMERICAN ASSOCIATION OF MEDICAL EXAMINERS.—The fourteenth annual meeting of the American Association of Medical Examiners will be held June 22, 1914, at Atlantic City, N. J. Hotel Dennis will be headquarters and meeting place.

APPOINTMENTS.

HARVARD UNIVERSITY. — *Dr. Robert Williamson Lovett* has been appointed professor of orthopedic surgery, and *Dr. Roger Irving Lee* professor of hygiene.

RECENT DEATHS.

DR. FRANK BISHOP HARRINGTON died at Brookline, June 8, 1914, aged 59 years. He had been a Councilor of The Massachusetts Medical Society since 1910 and was president of the Suffolk District Medical Society in 1911 and 1912

DR. JAMES A. BLAKE, of Brooklyn, N. Y., died from cardiac disease on June 9, in his 72d year. He was born in Lansingburgh, N. Y., and was graduated from the Albany Medical College in 1868 and the College of Physicians and Surgeons, New York, in 1869. For a number of years he was on the visiting staff of the Manhattan Eye, Ear and Throat Hospital. His son, Dr. James Eddy Blake, is a well-known radiographer in Brooklyn.

BOOKS AND PAMPHLETS RECEIVED.

Anatomy and Dissector in Abstract. By Stewart L. McCurdy, A.M., M.D. Medical Abstract Publishing Company.

Preliminary Note on a Skin Reaction Indicating Protection against Typhoid Fever. By F. P. Gay and J. N. Force. Reprint.

What the State Shall Do in the Care and Supervision of School Children. By Eugene H. Porter, M.A., M.D. Reprint.

Epidemiology of the Outbreak of Poliomyelitis in Buffalo, N. Y., 1912. By Wade H. Frost and James P. Leake. Reprint.

Department of Applied Statistics, University College, London. Questions of the Day and of the Fray. No. VII. Mendelism and the Problem of Mental Defect. I. A Criticism of Recent American Work. By David Heron, D.Sc. London, 1913.

On Psychology and Medical Education. By S. I. Franz. Reprint.

A Further Study of the Anatomy and Physiology of the Infant Stomach Based on Serial Roentgenograms. By Godfrey R. Pisek, M.D., and Leon Theodore LeWald, M.D. Reprint.

The Unexpurgated Case against Woman Suffrage. By Sir Almroth E. Wright, M.D. Paul B. Hoeber, 1913.

Worcester State Hospital Papers, 1912-1913. Offered in compliment to Dr. Hosea Mason Quinby. Massachusetts State Board of Insanity.

Surgical Experiences in South Africa, 1899-1900. By George Henry Makins, C.B. Oxford University Press. 1913.

The Surgical Treatment of Chronic Intestinal Stasis. By William Seaman Bainbridge, M.D. Reprint.

A Contribution to the Study of Chronic Intestinal Stasis. By William Seaman Bainbridge, M.D. Reprint.

What Occupation Neuroses Really Are. By Tom A. Williams, M.B., C.M. Reprint.

Original Articles.

ANAL AND RECTAL GROWTHS OF BENIGN OR DOUBTFUL CHARACTER.*

By T. Chittenden Hill, M.D., Boston,

Instructor in Diseases of the Rectum, Harvard Graduate School of Medicine; Surgeon to the Rectal Department of the Boston Dispensary; Surgeon to the Rectal Department of the Mt. Sinai Hospital.

In a series of 3000 rectal cases which I reported at the last meeting of the American Proctologic society at Minneapolis, there were but 49 cases of benign growths and some of these it was almost stretching a point to classify as tumors so small were they in size. In fact in this series the innocent tumors were quite overshadowed by the cancer cases of which there were 76. Hence, it will be seen, that the subject under discussion this evening cannot be considered a common one. Our interest in these benign growths would indeed be small were it not for the difficulties in diagnosis which occasionally arise in some of the border line cases.

It may be said at the outset, that as ordinarily seen, the great majority of malignant as well as benign tumors of the rectum are characteristic and that their correct diagnosis is easily made. But in recent years the general practioner has begun to recognize the earlier symptoms of new growths and insists on a more thorough local examination in such accessible cavities as the rectum, with the result that more patients are now seen in an early stage, when the exact nature of the lesion is not by any means so apparent.

The two step operation, that is, first removing a specimen for microscopic investigation and later performing a radical operation, in case the growth is found to be malignant, is not now approved by some excellent authorities. They claim the probability of a cure is, thereby, greatly reduced and the statistics of Bloodgood on this point are convincing.

Although, as a rule, it is easy to differentiate the benign from the malignant, still, the number of non-malignant lesions which come under our observation with all the clinical appearances of malignancy, and *vice versa*, are frequent enough to make it worth while to study them most carefully. And when we take into account the formidable, mutilating operation with its high immediate mortality (30-40%) and small percentage of authentic cures (10-15%) to be undertaken in the one instance and the simple procedure necessary for relief in the other, the problem of diagnosis becomes a very important one.

It is no way comparable with cancer of the breast, for instance, in which a complete amputation has been performed for a benign tumor. Excellent authorities sanction the practice of treating doubtful breast lesions as malignant, and Bloodgood states that in experienced hands 10% of the complete operations are done on benign cases. It may be a deforming operation to do more than is needed for mammary growths, but, in the case of the rectum there is not alone mutilation but serious impairment of function as well, a consideration which I believe should lead us to exhaust every means of diagnosis before undertaking a radical operation.

It is not my purpose to review the literature of this subject, nor would it interest you for me to attempt a complete discussion of the varieties, symptoms, diagnosis and treatment of benign tumors of the rectum since you can acquire this information much easier and far better from the text books at your disposal. I shall, therefore, simply present to you some of the problems that have come under my personal observation, not alone of benign neoplasms of the anus and rectum, but of some inflammatory conditions that assumed the clinical appearance of malignancy.

In Mumford's book, "100 Surgical Problems," case 93, is of interest in this connection, as it illustrates the perplexity of three eminent surgeons over what turned out to be an abscess. After digital examination Dr. Mumford was in doubt as to the nature of a mass he could feel high up in the "posterior rectal region and obstructing the lumen of the bowel." The remainder of the history I quote directly from the book. "The next day Dr. M. H. Richardson saw the man with me, and we examined him carefully under ether anesthesia. We found the condition much as I have described it. A mass upon the posterior aspect of the rectum impinged upon that organ, apparently involving the mucosa; fixed, in extent the width of two fingers, and admitting a proctoscope with difficulty beyond it. The mucosa over the swelling was eroded and sloughy in appearance. To both of us it seemed highly probable that the mass was malignant but we were not altogether satisfied with that conclusion. For the next three or four days the patient failed perceptibly; his appetite vanished; he became extremely cachectic in appearance; his pulse ran up and down in an uncertain fashion, and he carried a temperature between 99 and 102. On the 12th of March (4 days later) we decided on a more extensive investigation, and called as an additional consultant Dr. J. C. Warren. After the patient was etherized my consultants asked me first to dilate the sphincter and to explore the rectum, while they looked on with great interest. On dilating the sphincter and introducing my finger cautiously into the bowel, I encountered

* Read before the Manchester, N. H., Medical Society, March 20, 1914.

almost at once the tumor, which seemed to be increased considerably in size and to be softer. As I endeavored to push past it, it suddenly ruptured, allowing the discharge of nearly half a pint of malodorous pus. The diagnosis, accordingly, was settled; we were dealing with a simple case of periproctitis with abscess."

This case was instructive and similar in many respects to several that I have met, where an abscess develops in the cellular space between the rectum and sacrum above the levator ani. As the suppurative process goes on the rectal wall is crowded into the lumen of the bowel. The infiltration of the surrounding tissue and bowel coats at first causes the mass to feel indurated and irregular and resemble very closely the sensation imparted to the finger in malignancy. A little later, however, the mass becomes soft and boggy and fluctuation is perceptible, when all doubt as to its nature is removed.

The cases in which I have experienced any serious difficulty in making a differential diagnosis have not been acute abscesses but certain blind internal fistulae associated with induration along their tracks. At first thought the diagnosis would seem to be simple, as it is in the ordinary submucous fistula, but, when a sinus occupies the pelvi-rectal space outside the bowel, the irregular outline of the induration occasionally found may very closely resemble carcinoma.

The following case illustrates this point and was for a time very puzzling.

CASE 1. Mr. G., a business man, 57 years of age, was referred to me March 17, 1911, by Dr. George W. Gay, of Boston, who had successfully operated upon him for a large fistula twenty years previously, after which he had enjoyed excellent health up to a few months before coming under my care. He seemed a fairly vigorous, wiry individual of good color, but said he had lost ten pounds during the past six months. This, he stated, was the duration of his present illness, which began with a slight discharge about the anus that still persisted. There was neither rectal pain or hemorrhage, but he felt that he was growing weak, had but very little appetite and was inconvenienced more or less with indigestion. He had nothing further of importance to relate, and his heart, lungs and urine were found to be normal.

Rectal Examination. On the right side of the anus there was an extensive cicatrix of his former fistula operation with a retracted orifice, as is frequently seen in these cases. Posteriorly there was an opening between the sphincters that admitted a probe for a distance of one inch. On digital exploration, an oval mass about the size of a halved walnut, could be felt on the posterior rectal wall, slightly to the left of the median line. It felt a bit boggy and the mucous membrane was slightly movable over it. It was not nodular, but was rather irregular in outline, and at its upper extremity there was a small indurated area. A polypoid growth the size of the end of a lead pencil lay near by.

Although there was nothing absolutely definite about this mass, there was, as I find in my notes, a "suspicious feel" and I arranged for a consultation with Dr. Gay the next day. At this examination the swelling seemed less indurated, and we agreed that there was little likelihood of malignancy. As it did not seem that any procedure, short of an operation, would cure his local trouble, Dr. Gay recommended a Southern trip, together with some constitutional treatment. He came to me again five weeks later, with a note from Dr. Gay asking me to do "whatever I thought best." His vacation in the South had not improved matters. He did not look as well as when I last saw him, and called attention to his further loss of weight which he stated now amounted to 20 pounds, and judging by the loose fit of his clothing about the waist it may possibly have been more.

At this visit the mass in the rectum felt distinctly larger, but in other respects about the same as at the first examination. I urged operation and explained the element of doubt about the nature of the growth, whereupon he gave his consent to excision if it seemed necessary when under ether. Dr. Gay, who saw him at this time, wrote me as follows: "Mr. J. was in this morning. That growth feels somewhat larger than it did a month ago and the upper edge is more defined to my touch. It is soft more like a sarcoma than a carcinoma. In view of the loss of flesh and strength, I agree with you that he should have ether and all should be in readinesss for removal of the growth, if the ultimate examination confirms the present one. I have urged immediate action, irrespective of any business engagements."

At operation a few days later, with the patient completely anesthetized, so that one could thoroughly palpate the mass, get well above it and exert firm pressure, the hard irregular character of the growth disappeared, and it became almost soft and pulpy under manipulation. It was, therefore, perfectly evident that we were dealing with an inflammatory condition about the track of a deep fistula.

A director was inserted into the small posterior opening for a distance of one inch, where resistance was met, and, with the director as a guide, I carried the incision a little beyond and to the right of the coccyx. This sort of a case, in my judgment, needs particularly good drainage, and for this reason should be freely incised. With the wound well retracted, an opening was found through which the director was easily passed to the mass felt in the rectum. After dividing two constricting bands, the finger was readily inserted into a fair-sized cavity filled with cheesy, sebaceous material, made up of retained blood and pus, which was removed with a curette, whereupon the tumor entirely disappeared. There was considerable lateral burrowing, especially on the left side, that had to be dealt with, as well as a sinus which extended over an inch above the mass, making the entire track nearly five inches in length. After irrigation, two good sized rubber drainage tubes were passed to the upper part of the wound, and snugly packed about with gauze. A rubber tube was also inserted in the rectum to overcome any discomfort that might arise from the retention of flatus.

One lesson to be learned from this case is the far different aspect a mass in the rectum

often assumes when the patient is completely relaxed under a general anaesthetic. I have not found the proctoscope of much assistance in questionable cases, although it is perfectly satisfactory in diagnosing the more typical growths above the reach of the finger.

In the case of Mr. J. there were three possible diagnoses:—(1) A gummatous growth, which is very rare in the rectum, was ruled out because he had never had syphilis, nor were there any signs of the disease to be found. (2) Tubercular ulceration may be mistaken for carcinoma, when there is a surrounding chronic inflammatory thickening associated with considerable tumefaction. In this case there was no ulceration of the mucosa, and tuberculosis was therefore not seriously considered. (3) The only question left to decide was, is this a fistula outside the gut, or a malignant growth. The irregular outline and induration suggested malignancy, but the fact that the mucous membrane over the swelling was smooth and intact, and there was already a discharging sinus, pointed to the inflammatory nature of the disease.

A second case, in which the diagnosis was deferred for some time, proved to be an adeno-carcinoma.

Case 2. This patient, Mrs. A., 40 years of age, was referred by Dr. Frank B. Brown of Dorchester, for a fistula of twenty years' standing. She had been operated upon three or four times without permanent benefit, and she stated that she had never considered herself cured at any time, as there had always been some discharge of pus about the anus. Her general health was very good. She was a small but well developed woman, of good color, and her weight was about normal.

On careful rectal examination the opening of the fistula was detected in the posterior mid-line, between the sphincters, in much the same location as the preceding case. There was no external opening, but back of the anal orifice, and extending into the right ischio-rectal fossa, could be felt an indurated track about one and a half inches in length. Pressure on this caused some pain and the escape of several drops of pus from the internal opening.

I sent this patient to a private hospital, where I thoroughly incised the fistula, which was found to be rather extensive and complicated by numerous burrowing tracks leading from the main sinus. There was much cicatricial tissue, partly caused by her former operations, which was also removed. Nothing that would in any way bear on the future history of this case was noted at operation. I am positive there was no induration about the internal opening at this time, or for some time later.

Although two of her former operations had been performed by a surgeon of large experience, I attributed the several failures to cure this fistula to a condition seldom recognized by the general surgeon, and to which attention was called by Brick of Philadelphia a few years ago. Blind internal fistulae of the posterior commissure are frequently very troublesome if some of the fibres of the external sphincter are not cut at right angles, so as to put the muscle completely at rest. Simply incising the external sphincter in a posterior direction is insufficient, because it merely separates the fibres, most of which, it will be recalled, have a Y-shaped arrangement as they pass behind the anus, and thence backward for attachment to the coccyx. The difficulty often experienced in this type of fistula is that the sinus apparently does well at first, but the discharge does not altogether cease, and it will be found that a small pocket-like ulcer persists at the anorectal line, which repeated curettings and applications seem to have little effect upon. Even another incision in an antero-posterior direction, which only separates the fibres again, will have no better effect, but after laterally cutting a few muscle fibres, healing is prompt.

My operation was in January, 1909. The wound healed slowly, and in about two months closed entirely, except for a small ulcer in the posterior mid-line, much like the one just described, notwithstanding the fact that the precaution had been taken to incise the muscle, as recommended by Brick. It was a small round ulcer, about one-eighth of an inch in diameter, and caused the patient no discomfort. I then believed it would disappear with or without treatment, but as she was more or less conscious at times of a little moisture of the parts, I saw her at monthly intervals from then on to the following January, when a small indurated area the size of a pea appeared at the upper edge of the ulcer. A probe was passed under this little swelling, without any pressure, and this fact seemed to afford a very reasonable explanation of the delayed healing of the ulcer. Feeling somewhat chagrined that a small submucous fistula had escaped my notice so long, I proceeded to incise it, under local anesthesia, before she got off the table. But the induration did not disappear, and slowly, during the next six weeks, extended a little higher, when it was an inch in length, oval in outline, and covered with smooth, firmly adherent mucous membrane.

A second operation was advised, and as the mass seemed to me a suspicious one, I called in consultation Dr. F. P. Williams, my associate at the Boston Dispensary. Under ether the growth felt hard and rather irregular, and was suggestive, to say the least, of malignancy, but as a grooved director easily passed to the top of the swelling, it was pushed through and the overlying tissue divided. A specimen was sent to Dr. Timothy Leary, who reported simple adenoma.

Even with this comforting assurance the induration and swelling did not subside as would be expected in either a benign growth or an inflammatory condition. It rather seemed to be growing larger and more indurated.

Dr. James P. Tuttle of New York came over a few days later, while she was still in the hospital, and saw her. He was quite positive the growth was malignant, and I was now very willing to concur with him in this diagnosis. A perineal excision was performed, removing five inches of the rectum. The report on this specimen, rendered by the same pathologist, was adeno-carcinoma. Mrs. A. lived four years after this, but finally succumbed to a local recurrence.

The influence of syphilis in the production of fistula is an unsettled question. It has, however, long been recognized that certain simple inflammatory fistulae in syphilitic subjects do not get along well, unless anti-syphilitic

treatment is instituted either before or in conjunction with operative measures.

The following case, the most extensive fistula I have ever seen, was sent me in December, 1911, by Dr. Chas. M. Whitney, of Boston, who asked my opinion as to its malignancy. Salvarsan had been administered three times, by Dr. Whitney, for the rectal condition, and I believe this had much to do with the rapid healing that followed operation.

CASE 3. This patient was a man from Providence, R. I., who gave his age as 46, but looked 15 years older. He appeared much debilitated, and said he had lost 20 pounds during the preceding year. He had contracted syphilis in 1893, and some time during the same year an ischio-rectal abscess occurred on the left side, which was incised under ether. Following this there was very little, if any, discharge noted until 1901, when it reappeared, and had since caused him much annoyance. He had for some time been compelled to wear a large anal pad to protect his clothing from the rectal discharges. He was unable to sit with any degree of comfort. He stated that a severe burning sensation in the rectum came on about one-half hour after stool, and lasted for several hours. The discharge was profuse, at times yellowish and at other times watery.

Examination revealed a most extensive "watering pot" fistula. I was able to make out eighteen external openings, which were scattered all about within a radius of five inches from the rectum. The anal orifice was made out with difficulty, as it was occluded by three irregular wedge-shaped masses of extreme hardness, and larger than one's thumb. The skin of this region, including the nates and cruro-scrotal fold, was of a coppery red color for the most part, but interspersed here and there with shiny tense areas. The whole peri-anal region was bathed with foul-smelling pus, which could be seen escaping from many of the openings. A "malignant looking mass" describes it very well.

I completely incised this fistula at one sitting, and there was but little shock following the operation. Much of the lateral burrowing was subcutaneous, with the skin considerably undermined. It was not very deep, except posteriorly, where the track which connected the two ischio-rectal fossae extended rather high as it passed beneath the ano-coccygeal ligament. With all the external openings there was but one internal one, and that of only moderate size, situated at the interval between the sphincters, in the mid-line posteriorly.

The most remarkable thing about this fistula was the extreme induration of the tissues. Incision seemed very much like cutting cartilage, and the structures were so firm that it was difficult to spread apart the incised tracks sufficiently to explore them.

The post-operative history was uneventful. Healing progressed very rapidly, and he left the hospital seven weeks later. Dr. V. L. Fitzgerald of Providence very kindly looked after him for about six weeks longer, when healing was complete. He put on weight fast, and is now in excellent health.

The major portion of benign growths of the rectum are the adenomas or glandular polyps. They are found most frequently in children, and give rise to repeated rectal hemorrhages. In most instances, owing to the constant downward force exerted by the feces and peristalsis, the pedicle is torn away eventually, and the growth passed spontaneously. When discovered in children, however, it is best to remove them at once. When these growths are met with in adult life, they exhibit a tendency to undergo carcinomatous degeneration. For this reason a careful microscopic examination should be made of them at the time of removal, and should there be any uncertainty in the pathological findings, the patient should be examined at regular intervals for signs of induration. Occasionally, some of these cases either from mechanical irritation, infective processes, or ulceration in the immediate neighborhood, closely resemble and may be mistaken for cancer.

CASE 4. A man, 29 years of age, sent me in November, 1911, by Dr. John H. Cunningham, of Boston, was a case of this kind. Dr. Cuningham first noticed the rectal growth while examining his prostate. His history was that eight years before, while living in New York, he first noticed that he was passing mucous per rectum. He then consulted his physician, who diagnosed his ailment as catarrh of the bowel, and treated him accordingly. Ever since then he had passed more or less mucus. For the past four years there had, occasionally, been blood as well. At times the bleeding had been rather profuse, but ordinarily only small amounts were observed.

Upon passing the finger into the rectum, a tumor, the size of a cherry, could be felt on the anterior wall just above the prostate. An indurated, slightly elevated track extended one inch below this. Through the proctoscope the appearance was spongy, bright red and lobulated. There was considerable superficial ulceration in the immediate vicinity of the growth, and it would bleed readily wherever touched. The mucous membrane above was smooth and normal. The question of malignancy may well be raised in a case of this kind. Dr. Cunningham inclined to this view, and accordingly the patient was sent to a private hospital and prepared for a radical operation. My own opinion expressed at the time was that it was benign, which conclusion was based largely on a former experience in a very similar case. It should be remembered, however, that no matter how great one's experience, one's judgment is liable at any time to be reversed by the microscope.

At operation, with the patient fully etherized, it seemed very improbable that the tumor was malignant. After the sphincters were thoroughly dilated, I was able to remove it without much difficulty, by making traction with a clamp attached to the mucous membrane below. Dr. Felix H. Adler, assistant in pathology at Harvard, and a friend of the patient as well, was present at the operation, and reported later that it was a benign growth. This was a happy outcome for the patient, as he had been prepared for the worst.

Villous tumor of the rectum is very uncommon, and but few cases have been recorded in medical literature. The chief point of interest about them is that they show a marked tend-

ency to undergo malignant degeneration. A case of this kind I reported before the American Proctologic Society in 1910, in some detail.

Case 5. This patient was a woman, 40 years of age, referred by Dr. J. H. Vaughn, of Everett, Mass., in 1907. She was well nourished, weight about normal, anemic with sallow complexion, but otherwise in good health. She had been subject to rectal hemorrhages for six years. During the year previous to my seeing her, the hemorrhages had become more profuse, and a mass always protruded from anus during defecation, and even after slight exertion, as when walking. It was necessary for her to resort to the toilet several times during the day, and to get up two or three times at night, when she would pass half a cupful of blood-stained mucus; also she was annoyed by the escape of mucus with flatus. For two months tenesmus had been present nearly all the time.

Digital examination of the rectum revealed a slippery growth with a band-like pedicle, one inch wide, attached obliquely two inches above the anus. By careful manipulation I was able to bring outside the anal orifice a lobulated cauliflower-like growth the size and shape of a large English walnut, from which there was a gentle oozing of blood while it was held outside the sphincters.

A few days later I removed this tumor under local anesthesia, at the home of the patient. The sphincters first were infiltrated with a quarter of 1% cocaine, and fairly well dilated. The pedicle was next infiltrated and clamped about half an inch from the margin of the tumor. It was then ligated in three sections, and the tumor removed. Over seven years have now elapsed with no sign of recurrence.

One of the most unusual growths ever encountered in the rectum is the myoma. It has been termed by Miles of London, a "pathological curiosity." They arise from the muscular coat and assume a nodular form, supplied with a pedicle, as a rule, but sometimes exist as broad tumors in the muscular wall of the gut without a pedicle. Tuttle cites only five cases in medical literature, and goes on to state that "these tumors are quite rare, and it is impossible to determine their nature without a thorough microscopic examination. If they are small and confined to the rectal wall the hard, nodular surface may frequently lead one to the diagnosis of schirrhus cancer."

Case 6. The only specimen of this kind I have ever seen was distinctly benign, and was removed from a man, 36 years of age, who came to my clinic at the Mt. Sinai Hospital. His rectal symptoms had existed for four years, and most important was a gradually increasing, obstinate constipation. He had at last arrived at such a state that he was unable to have any dejections in a normal manner, but relied mainly on frequent enemata in conjunction with the daily use of strong cathartics. There was an uncomfortable sensation in the rectum much of the time. He was in the habit of going to the toilet five or six times daily, but was only able to pass small particles of feces.

When in a recumbent posture he was comparatively comfortable, and at night he was free from the teasing tenesmus. At irregular intervals he was subject to small hemorrhages.

One of the remarkable features about this case was the loss of weight, stated by the patient to be fully thirty pounds. This without much doubt was due entirely to the large quantities of pills and Epsom salts he was continually taking.

A digital examination of this man was a very interesting procedure. On the occasions when he had secured the best results from the laxatives and enemata the rectum felt perfectly normal as high as one could reach, but when the gut above was more or less filled with fecal matter, a large smooth tumor, which felt much like uterine tissue, could be easily located just above the sphincters. With the finger hooked about the growth, and the patient exerting some effort at expulsion, a portion of it could be seen at the anal orifice.

At operation, over two years ago, the sphincters were thoroughly divulsed, and a large, smooth, irregular shaped mass was delivered outside the anus with some difficulty. The pedicle was rather fan-shaped, and wiry, muscular tissue could be plainly felt in it. The attachment was nearly four inches above the anus, on the anterior wall of the rectum. After transfixion and ligation, I removed the tumor with scissors.

The growth was shaped somewhat like a mushroom. Its dimensions, as measured soon after removal, were $3\frac{1}{2} \times 2\frac{1}{2} \times 2$ inches. It was found to consist essentially of spindle shaped cells, arranged in bundles, with their long axis parallel to one another. These cells were regarded as more or less well formed unstriped muscle fibre, and the tumor was identified as a pure myoma by Dr. J. H. Wright, pathologist at the Massachusetts General Hospital.

As stated at the beginning of this paper, the vast majority of benign tumors of the rectum are easily recognized. The two most common varieties are the adenoid and the fribroid polyps. They may arise from any part of the rectum, but are generally found in the lower two inches. Their presence is generally undetected until the pedicle has stretched sufficiently for them to protrude at the anal orifice during defecation. When found, I believe that, as a prophylactic measure, they should always be removed even if causing no discomfort and of course submitted to examination for possible malignancy.

Operative removal is simple and in most cases can be done under local anaesthesia. The growth should be hooked down with the finger or instruments and the pedicle infiltrated with a weak solution of cocaine and clamped with a suitable pair of forceps as close as may be to its attachment to the rectal wall. A linen or silk ligature is next applied on the proximal side of the clamp, or, if broad, the pedicle is transfixed with it and it is tied in sections. The growth is then cut away on the distal side of the clamp, which is removed, and in due time the ligature sloughs away.

When more than one or two polypoid or semi-sessile growths present to the examining finger in the rectum, and particularly if they

are rather higher than the zone of ordinary occurrence of single growths, and there is an associated history of diarrhoeal and mucoid discharges, one must at once consider the possibility of multiple adenomata, a most serious condition, rarely or never met or diagnosed by most physicians. When the growths are numerous and close together the feeling is distinctly like malignancy, and only by means of the proctoscope or sigmoidoscope can a certain diagnosis be made. These growths may, and usually do, occupy the major portion of the large bowel, bleed easily and may be soft or dense according to the amount of contained glandular or fibrous structure. They are very prone to malignant degeneration, and because one tumor is removed and found not to have been so transformed, one has no right to infer that it has not ocurred in others.

Medical treatment of this disease is largely palliative. A few cures have been reported from the employment of lavage of the large intestine but such instances must rather be regarded as symptomatic cures, for it is hard to understand how the tumors can be made to entirely disappear in this way. It may be that the origin of the trouble is some infective process, little understood, which is relieved by keeping the parts clean.

The surgical treatment involves the establishment of a temporary or permanent cecostomy or ileostomy followed by irrigation. Colectomy is not to be considered and ileosigmoidostomy is unwise

The only case of multiple adenomata I have ever seen came to the Boston Dispensary a few years ago. His record is very incomplete as he could not speak English and unfortunately never returned after the first visit. He was an Italian laborer, 40 years of age, much debilitated and evidently a very sick man. He complained chiefly of abdominal pains and copious diarrhoea (10 to 20 dejections daily) and the passage of blood and mucus.

The rectum and sigmoid, as far as the proctoscope was passed, about ten inches, was thickly studded with multiple adenomata.

I have presented this paper to you tonight with personal cases described in detail because they seemed to me to present certain problems of diagnosis and treatment of more than ordinary interest, unusual cases perhaps, yet such as might present themselves to any of you at any time.

Cases of Infectious diseases reported to the Boston Board of Health for the week ending June 16, 1914: Diphtheria 39, of which 4 were non-residents; scarlatina 60, of which 11 were non-residents; typhoid fever 4; measles 131, of which 3 were non-residents. The death-rate of the reported deaths for the week was 15.56.

BACK PAIN AND ITS DIAGNOSIS.

A STUDY OF A SERIES OF CASES.

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ONE of the commonest types of case seen in the orthopedic out-patient department of the hospital is the adult patient who complains of pain in the lower back. With a view to ascertaining the relative frequency of the varied pathological conditions causing this prominent symptom, I undertook the investigation of some forty cases chosen as far as possible consecutively from the out-patient clinic. In thirty-two of these it was possible to make a fairly detailed examination of the conditions present, and it is chiefly from a study of this series that my conclusions have been drawn.

The number of cases is unfortunately small, but they presented many features which were extremely suggestive. My special quest was to determine, if possible, how far lesions of the sacro-iliac and lumbo-sacral regions dominated the mass of lame backs coming for treatment. These investigations embraced a fair proportion of the lame backs seen in the clinic over a period of three months.

Since the classical paper of Goldthwait and Osgood in 1905[1] many studies have been made on these problems by American authors,[2] but in Europe and more especially in England, practically no attention has been paid to this important section of orthopedic surgery. The subject has come dangerously near being a well-worn one in this county, and it is very important to approach it with an open mind, preferably with a healthy scepticism.

All the thirty-two cases of the present series were of the male sex; for various reasons I did not include the few female cases I was able to see in the clinic. There are fundamental differences in the structure and functions of the sacro-iliac articulations in the two sexes, and I venture to suggest that in much that has been written on lesions of these joints, the part played by the sex distinctions has not been as fully emphasized as its importance warrants.

The thirty-two lame backs of this series group themselves into the following classes:

	CASES.
Sacro-iliac strain	12
Hypertrophic arthritis of lumbar spine	7
Postural back strain	4
Lumbo-sacral strain	3
Spondylolisthesis	2
Lumbar caries	2
Fracture transverse process, 3d and 4th lumbar vertebra	1
Infectious arthritis, lumbar spine and sacro-iliac joint (Neisser origin)	1

The outstanding complaint of all these patients was pain in the lower back, in some instances associated with pain of the sciatic type. There was no case of true sciatica or lumbago in this series; and I did not see any such case amongst a good many other back cases in the clinic during a three-months' period, although especially on the lookout for them. The comparative variety of these two so-called every-day complaints is fully appreciated by orthopedic surgeons, but not by the profession in general.

We may now proceed to a more detailed analysis of the various groups, omitting any reference to the last three, which presented no particularly important features.

SPONDYLOLISTHESIS.

The occurrence of two cases of this condition, in not a small list, may be purely fortuitous, but it is quite certain that such cases are by no means rare. A good many years ago Lane[3] pointed out the fact that spondylolisthesis was not uncommon amongst the laboring classes; in coal heavers he regarded it as almost a normal condition. Some believe the separation between pedical and lamina of the fifth lumbar vertebra to be an acquired deformity, absorption of the pedical having resulted from long continued pressure. Turner has shown that in 5% of subjects, there is a congenital lack of fusion between laminae and pedicles of this vertebra. In a given case of spondylolisthesis, it is practically impossible to determine, by skiagrams, whether such a separation is of the congenital or acquired type. When the separation exists, the body of the vertebra alone slips downward and forward, leaving the neural arch in situ. Goldthwait[4] has described how spondylolisthesis may arise where there is no solution of continuity between neural arch and body; in such examples owing to variations in shape and facing of the superior articular processes of the first sacral segment, unlocking takes place and forward sliding of the fifth lumbar is formed. Here the whole vertebra travels forward with the resulting danger of pressure on the cauda equina. Adams has recently shown the relation of what might be termed unilateral spondylolisthesis to the production of scoliosis. It is apparent that changes in the position of the fifth lumbar vertebra are to be found quite frequently.

The two cases in my list were both men engaged in specially laborious work. One patient came up with a traumatic back strain which was perpetuated by an extremely faulty posture, of the round hollow back type. In neither case was the deformity a marked one. The old classical picture of spondylolisthesis as seen in the text books and in museum preparations must be rare, but the slighter forms which cannot be diagnosed on sight are probably quite common.

HYPERTROPHIC ARTHRITIS.

The seven examples of this condition all occurred in men above the age of forty-eight, who were following arduous occupations. In one only did the symptoms manifest themselves after a definite trauma. Six cases showed a lateral deviation of the trunk, three of the patients presenting the clinical symptoms of so-called sciatic scoliosis, with the list to the same side as the pain in two out of the three. There were no other noteworthy features in the group, the physical signs and radiographic appearances being of the usual type.

POSTURAL SACRO-ILIAC AND LUMBO-SACRAL STRAINS.

These groups present close inter-relationships; all three conditions may co-exist in the same patient, and it is not always possible to establish any definite boundary line between the several types.

1. *Postural Strain.* In four cases the chronic back ache was considered to be due entirely to the obviously extremely faulty body poise present. These individuals showed an absence of any signs which would definitely localize a lesion to the sacro-iliac or lumbo-sacral joints, and there were no abnormalities seen in the x-rays of these regions. No other physical condition was present, which might explain the pain in the back. All four patients had the type of bad posture associated with an increased lumbar lordosis and they were all curiously enough, Russian immigrants.

2. *Sacro-iliac Strains.* Under the generic title of sacro-iliac strain is grouped a most interesting class of cases. The term strain as applied to any joint is one which long usage has firmly established in clinical nomenclature but in itself it is not indicative of any one simple pathological lesion. It behooves us, therefore, to enquire closely into the exact lesion present in cases in this group.

In the present series of thirty-two lame backs, twelve examples of lesions of the sacro-iliac articulation designated as strain, are seen. It is extremely likely that in a much larger series the proportion would be considerably higher.

All twelve cases were under fifty years of age, and nine of them under forty-five. In five, the symptoms followed a very definite acute trauma. Seven cases showed a lateral deviation of the spine; four of them having unilateral sciatic pain with the list homologous in three.

It happens that in ten of these twelve cases the joint strain was right-sided; the two cases in which the left joint was the site of the trouble, both had had injuries unusual in this type of case; one man being run over by a motor car, whilst the other, a fat unwieldly individual of sedentary occupation, had fallen downstairs.

Whether this preponderance of right-sided lesion is a coincidence or not it is impossible to

say from such a small amount of material. In other joints, strains (using the term in a rude sense) may show such a predilection for one side. In the common internal derangement of the knee, viz: the displaced or torn internal semilunar cartilage, the left knee is affected in at least 70% of cases. This injury is seen in England largely in two classes of individuals, the foot baller and the coal miner. The frequency of involvement of the left knee has been explained by the fact that the majority of the twisting movements of the trunk occur from right to left, the left knee usually being firmly planted on the ground in the position of slight flexion. This may happen both on the football field and in the low seam in the mine, where the miner works in a cramped position.

Some such occupational asymmetry may perhaps explain the location of strains to the right sacro-iliac joint in men accustomed to very heavy lifting as in the present series of cases.

The skiagrams were singularly unproductive in this group of sacro-iliac strains; no abnormalities being seen either in the joints themselves or in the lumbo-sacral region.

There are three interesting and important facts about this group which I should like to emphasize. In the first place, no case showed gross displacement of the sacro-iliac joint demonstrable by x-ray; no case presented the physical signs of relaxation of the joints and no actual pathological process, such as for example, tuberculosis, was evident in any single one.

Gross displacements of the sacro-iliac joint can and do occur but they must necessarily be rare injuries; requiring a considerable degree of violence and showing signs of extreme crippling. This applies to both series.

Relaxation of the joints in the male, must also be uncommon. If for any reason the condition of strain becomes chronic and persistent, the joint changes are usually if not invariably in the nature of a progressive stiffening, rather than a relaxation. In the female, on the other hand, all the conditions, predisposing to relaxation of the pelvic joints are found. Such a change within limits, is physiological, occurring especially during pregnancy; the failure of normal involution of the joints in the puerperium, associated with the possible injury during labor, are factors which explain the likelihood of such relaxation being often seen in the female.

Many cases of sacro-iliac strain reported in the literature are classed loosely as joint relaxations, irrespective of sex. I think we must appreciate the sex difference in relation to these joints, both from an anatomical and a pathological standpoint. The male and the female joints may, of course, have lesions in common, but on the whole, the pathology of these joints differs widely on the two sexes: a difference which is based on inherent variations in function and structure. The anatomical side of the question has been worked out very thoroughly in the last few years by Derry.[5] The peculiar form of the human pelvis is a result of the assumption of the erect attitude. In the lower mammals the plane of the sacro-iliac joints is practically horizontal and the articular surface of the ilium is only in contact with the first and part of the second piece of the sacrum. The human pelvis has been dragged down posteriorly by the pull of the ham strings and glutei; the sacrum rotating on a transverse axis between the ilia, the whole pelvis rotating on the hips.

As a result of this the two components of the sacro-iliac articulation have been brought into a more intimate connection. In the male the rotation has proceeded to a greater degree than in the female. The female pelvis tends to preserve the more primitive form of the lower mammal; the sacrum is more horizontal, the plane of the brim forms a greater angle with the horizon and the auricular facet extends on to the second sacral segment. The sacral articular surface in the male has come into still greater relation with the ilium and it usually extends over the sacral segments and a part of the fourth. In addition the actual joint surfaces differ markedly in the two sexes.

The auricular facet of the ilium in the female forms a rounded condyloid area fitting into a correspondingly hollowed-out surface on the sacrum. The male auricular surfaces show irregular projections and ridges which fit in interlocking fashion into corresponding pits and grooves and the edge of the articular surface on its anterior aspect, is lipped so as to overlap the adjacent edge of the sacral facet.

The female sacro iliac joint as is well known is capable of considerable real motion and is a true diarthrosis. Derry has called it a condyloarthrosis, thus placing it in the same category as the wrist joint. Coincident with the capability of free motion and dependent directly on it there has developed in the female a very strong ligament in the antero inferior part of the capsule, a ligament which has produced the preauricular sulcus on the ilium, one of the distinguishing features of the female bone.

These characteristics of the female peivis and sacro-iliac joints are evidences of mechanical adaptation for the functions of labor. The male sacro-iliac joint is practically incapable of any motion. Its anatomical structure would suggest exceptional solidity and stability. Yet the undoubted frequency of strains in men engaged in the hardest kind of manual labor seems to point to some special vulnerability. In the class of patient as seen in the clinic of this hospital the sacro-iliac strain is the commonest of all joint strains.

It seems to me that the fixed, almost immovable nature of the male sacro-iliac joint, explains its weakness in withstanding the effects of strain.

Albee from a study of fifty joints in the dissecting room states that the sacro-iliac joint is always a true joint, that irrespective of age or

sex the variations are very slight and that the antero inferior part of the capsule is always very thin and weak, conclusions which are not in accord with the best anatomical investigations.

When we come to analyse the exact lesion underlying a sacro-iliac strain we are confounded with certain difficulties. The joint is not strictly comparable to a joint such as the knee or hip. The massive posterior sacro-iliac ligaments for the most part stand at some distance from the actual true joint capsule and it is, therefore, possible to have a strain or rupture of fibres of the ligaments without any direct injury to the capsule itself. We must thus recognize the possibility of two extreme types of strain; one type in which the lesion is limited to the more superficial bands of the various posterior sacro-iliac accessory ligaments, the other where there is a stretching or tearing of the joint capsule and some intra-articular injury, such as a laceration of the fibro cartilage and synovial membrane or even a fracture of one of the projecting hillocks of bone on the auricular facets. In the latter condition there will be the possibility of the occurrence of a slip of the interlocking surfaces. Such cases are met with; they show no abnormality in the radiogram and they may undergo spontaneous reduction, or may persist and require manipulation.

The relative frequency of these possible lesions all of which come under the heading of sacro-iliac strains, still require to be worked out in a large series of cases.

Certain clinical differences go with these several types of strain. Thus the presence of very marked muscle spasm in the back ham strings, and the extremes of the hip motions suggest a lesion involving the joint capsule and the joint interior.

The history of a sudden onset, with the feeling of a crick in the back, persistent acute nerve pain over the posterior aspect of the joint sometimes with sciatic pain and a marked muscular spasm, is indicative of a slip of the joint. In such cases the sciatic pain is true referred pain, the ripping of nerve endings due to the lesion, being referred along the distribution of nerve fibres derived from this same origin as the joint supply; actual mechanical irritation of the lumbo-sacral cord on the upper two trunks going to form the sacral plexus being an impossibility in a lesion of this kind.

In the present twelve cases only one gave a history suggesting a slight slip of the joint. The symptoms in this instance gradually disappeared with support and occasionally light manipulations without any anesthesia. A pure strain with no signs of a slip may present very acute symptoms with marked spasm and temporary crippling as was the case in one patient in this series who was seen eighteen hours after the onset.

The diagnostic features of sacro-iliac strain are familiar to most orthopedists but one point deserves further consideration and that is the question of the value of the straight leg-raising test. There has been a tendency to exaggerate the positive value of this test.

Unless there is a decided unilateral limitation of straight leg raising, the act causing pain in the back, localized accurately over the affected joint the test is of no confirmatory value. The statements "straight leg raising limited" or "straight leg raising test positive" which sometimes appear in reports of cases, are absolutely worthless. The considerable variations seen in normal persons in the degree to which this act is possible depend on the length of the hamstrings; not only do these muscles vary in individuals but may even vary on the two sides.

Lumbo-sacral Strain. Three cases fall into category. The oblique inclination of the plane of the lumbo-sacral joint apparently indicates potential instability, though the free motion and the presence of the thick cushion-like intervertebral disc are factors antagonistic to strain.

All three cases had chronic backache referred to the lumbo-sacral region, with the absence of any positive signs of sacro-iliac strain or arthritic changes in the lumbar spine. They do not present clear-cut types, the diagnosis being arrived at mostly by a process of exclusion.

Two cases showed a large transverse process on the fifth lumbar on the right side, with extreme likelihood of impingement on the ala of the sacrum. In addition both had a poor posture with lordosis. There was no pain in the lower extremities in any of the cases. The presence of this asymmetrical variation in the transverse processes did not sufficiently explain the symptoms and physical signs but may possibly be the primary factor in causing disturbances of function at the lumbo-sacral articulation, as in the cases described by Goldthwait.[7]

From these few ill-defined cases it is impossible to draw any conclusions of value.

There are many other cases of low back pain and in examining the type of case it is important to consider the possibility of lesions such as neoplasm of the lumbar spine and sacrum; inflammatory conditions and neoplasms of the spinal meninges, cord and cauda equina and pelvic visceral disease. If one constantly bears these in mind the chance of serious error is miminized.

I am indebted to Dr. E. G. Brackett for the privilege of studying the above series of cases in the Orthopedic Clinic of the Massachusetts General Hospital.

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A STUDY OF THE VACCINE THERAPY OF TYPHOID FEVER.*

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THIS article is based upon a study of 135 cases of typhoid fever, comparing 40 cases where vaccines were administered with 95 cases where vaccines were not used. The forty cases that received vaccines were those cases admitted to the First Medical Service of the Boston City Hospital between August 1 and October 15, 1913, excepting such cases as showed complications previous to entrance or had a normal temperature before the diagnosis was confirmed by a positive Widal reaction or blood culture. The ninety-five cases not receiving vaccines and used for comparison consist of those cases admitted to the two other medical services of the Boston City Hospital during the same period of time. The one hundred thirty-five cases were treated alike save for the use of vaccines.

The vaccine used in this work was made by suspending in physiological salt solution a twenty-four hour agar slant growth of bacillus typhosus and then killing the organisms by a thirty minute exposure to a temperature of 56° C. The culture of Bacillus Typhosus used is the same that is used at the Boston City Hospital for Widal reactions and for prophylactic inoculations.

The initial dose of the vaccine was ten million killed bacteria. The number of organisms injected was increased daily by ten million, being administered every afternoon for one week, then on alternate afternoons with a twenty million increase until the temperature remained normal for three days or patient had received seven hundred million dead bacilli. The average total number of organisms given each patient was five hundred and sixteen million. Furthermore, there is no difference between the average number of organisms administered to those patients who recovered without complications and to those patients who died or recovered in spite of complications.

The inoculations were intracuticular and were all accompanied by local reactions,—of redness, induration, pain and tenderness. These appeared within twenty-four hours and lasted twelve to forty-eight hours. No systemic reactions were detected.

The features of comparison, between those cases receiving vaccines and those cases not inoculated, studied in this work and tabulated below are: duration of fever in uncomplicated cases, incidence and character of complications, and mortality. The average duration of fever in uncomplicated cases treated with vaccines was 24.39 days; in uncomplicated cases not receiving vaccines was 23.08 days. The percentage of cases showing complications were: inoculated, 55; uninoculated, 50½; all cases, 51. The percentages of mortality were: of vaccinated cases, 10; of unvaccinated cases, 11½; of all cases, 11 1-10. (See Table No. 1.)

* Read at a meeting of the Boston Society of Medical Sciences, March 10, 1914.

TABLE NO. 1.

SHOWING MAIN FEATURES OF COMPARISON BETWEEN THOSE CASES TREATED WITH VACCINES AND THOSE TREATED WITHOUT VACCINES.

	All Cases. (135)	Vaccinated Cases. (40)	Unvaccinated Cases. (95)
Days fever lasted in uncomplicated cases	23.46	24.39	23.08
Percentage of cases showing complications	51	55	50.50
Mortality percentage	11.1	10	11.5

The duration of fever in uncomplicated cases was approximately the same whether the cases did or did not receive vaccines. Defervescence in the uncomplicated cases began usually on the third day after admission, no matter whether vaccines were or were not administered. A more detailed study of the incidence and of the character of complications shows relapses occurring in 20% of inoculated cases in contrast to 11.5% of uninoculated cases; recrudescences in 17.5% of inoculated cases as against 28.4% of uninoculated cases; other complications in 37.5% of inoculated cases compared with 21% of uninoculated cases. In brief, the incidence of recrudescence was much less in the vaccinated than in the unvaccinated cases, while relapses and other complications were much more frequent in those vaccinated than in those unvaccinated. The latter class of complications includes hemorrhage, perforation, phlebitis, pneumonia, parotitis, tonsillitis, osteomyelitis, acute hallucinosis, Vincent's angina, and decubitus. (See Table No. 2.)

TABLE NO. 2.

SHOWING INCIDENCE AND CHARACTER OF COMPLICATIONS IN PERCENTAGE.

	All Cases. (135)	Vaccinated Cases. (40)	Unvaccinated Cases. (95)
All complications	51	55	50
Relapse	14.7	20	11.5
Recrudescence	25.1	17.5	28.4
Hemorrhage	3.74	7.5	2.15
Phlebitis	1.48	5	0
Perforation	1.48	2.5	1.05
Pneumonia	6.66	10.25	4.15
Parotitis	0.74	2.5	0
Tonsillitis	3.74	2.5	4.15
Cholangitis	1.48	2.5	1.05
Decubitus	2.22	5	1.05
Furunculosis	2.22	2.5	2.15
Osteomyelitis	0.74	2.5	0
Vincent's angina	0.74	2.5	0
Miscarriage	0.74	0	1.05
Acute hallucinosis	0.74	0	1.05

Analyzing the causes of the four deaths occurring among cases treated with vaccines, we find the first death due to an intestinal perforation, after the fifth inoculation of vaccine and after patient had received a total of 150 million dead bacilli; the second death was due to septic parotitis developing during a relapse which began after three weeks without fever and after patient had received 880 million killed bacteria; the third death was due to an intestinal hemorrhage occurring on eighteenth day after patient's admission to the hospital and after he had received 530 million dead organisms; the fourth death was due to bronchopneumonia on patient's twenty-first day in hospital and after he had received 580 million killed typhoid bacilli. These deaths were obviously not due to complications extraneous to typhoid fever.

The deaths occurring among the 95 cases not inoculated with dead typhoid bacilli were as follows: 4 pneumonia, 2 hemorrhage, 3 severity of the disease, 1 perforation, 1 alcoholism.

The more important articles which suggested this work were as follows: First that by Callison, pathologist to the Manhattan Eye, Ear and Throat Hospital in *American Journal Medical Sciences* for September, 1913, wherein he reports 475 cases of typhoid fever treated with vaccines by various men and showing a mortality of 6.5% and a 6.5% incidence of relapse. Second, the work of Captain Smallman of the English Army Medical Corps, who reports 36 cases of typhoid fever treated with vaccines, having a mortality of 8.3%. Third, the report of 41 cases by Meakins of the Royal Victoria Hospital, Montreal, where he used from 1000 to 4500 million killed bacteria—polyvalent non-autogenous vaccine,—with the death-rate of 4.6% and incidence of relapse of 2.3% among cases so treated, contrasted with a death-rate of 12.2% and an incidence of relapse of 13% among cases not vaccinated.

In the endeavor to be conservative and mindful of the absence of any good theoretical basis for the use of vaccines in cases of septicemia, the dosage used in this series was small, but frequently repeated.

The value of this work is entirely negative. Using the kind of vaccine and the doses already outlined, we find, first, no obvious systemic reaction to the vaccines; second, a local reaction to every inoculation with dead organisms, and third, no diminution of the duration of fever in uncomplicated cases nor of the incidence of complications, nor of mortality.

RINDERPEST IN THE PHILIPPINES.—Report from Manila, P. I., on June 15 states that the rinderpest or cattle-plague is rapidly spreading in the islands. Means are being taken to prevent its further extension.

THE FUNCTION OF THE SOCIAL SERVICE OF THE PSYCHOPATHIC HOSPITAL, BOSTON.*

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THE Psychopathic Hospital in Boston is the embodiment of an ideal long upheld by the Massachusetts State Board of Insanity and definitely expressed in their annual report as early as 1902. There a plan was sketched for a hospital with an out-patient department, to be conducted along the lines of a general hospital "for the study and treatment of patients" and "for scientific research"; to receive the insane who cannot be cared for at home "pending the legal formalities" preliminary to commitment to an insane hospital, and patients in the "incipient stages of mental disorder, who might never have to enter an insane hospital if they could obtain temporary relief from unusual stress, or be removed from unfavorable environment, or have the advice and supervision which might be afforded through the out-patient department of a hospital." Two years ago this hospital was opened in Boston in close relation with the main hospital for the insane of the Metropolitan District, the Boston State Hospital, and under the supervision of the same board of trustees.

The psychopathic hospital idea began to be put into practice abroad over thirty years ago, and there are now in Europe over 50 institutions for specialized care and investigation of the insane. In the United States there are psychopathic hospitals in four states,—in Michigan the Psychopathic Ward of the Hospital of the University of Michigan at Ann Arbor, in New York the Psychiatric Institute of the New York Lunacy Commission and Pavilion F of the Albany General Hospital, in Massachusetts the Boston Psychopathic Hospital, and in Maryland the Phipps Institute just opened as a part of the Johns Hopkins Hospital.

The patients at the Psychopathic Hospital in Boston either come voluntarily, or are received at the request of a physician, or are sent by the court or the police. The probate court may commit a person for thirty or sixty days' observation on the application of two physicians, the criminal court may commit a person under arrest pending a hearing, and the police may bring directly to the hospital an acutely insane person who comes under their care. The capacity of the hospital is 110 beds, and the average number of admissions is 125 a month. The cases include insanity, mental deficiency, psychoneurosis, alcoholism, and the types of mental and moral defect associated with delinquency

* Psychopathic Hospital Contribution 1914.5. The previous contribution 1914.4 by Dr. E. E. Southard, entitled "Feeble-mindedness as a Leading Social Problem," was published in the BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxx, No. 00, 1914, p. 000.

for which methods of diagnosis and classification have not yet been discovered.

The problems presented by the patients coming to the out-patient department may be grouped as follows: The question of insanity, the question of feeble-mindedness, psychoneurosis, alcoholism, speech defect, and delinquency, possibly the result of mental abnormality. About 30% of the 700 patients admitted to the out-patient department between August, 1912, and June, 1913, came through a general knowledge of the hospital, and as a rule we had no information about such patients except what they told us; 18% came through hospitals, physicians or other interested persons, usually with only a brief note or a card of introduction; 24% were discharged patients from our own wards; 28% came from schools, courts, or social agencies which had more or less information and gave us a written history of the patient.

The direct demand upon the hospital social service is lessened about 25% by the fact that a large number of our cases are already in the care of the social agencies which refer them, and that these agencies not only undertake to secure the histories of the patients, but make themselves responsible for their care and treatment according to advice from the hospital; but there are many points at which the social workers of the hospital can facilitate the efforts of these agencies.

The need of social service in some form can safely be assumed in the case of every insane, mentally deficient or neurasthenic patient who comes to the hospital, but we have estimated that the need is considerably less pressing or less readily discovered in about 30% of our cases. These include some of the chronic insane who are committed to insane hospitals, persons of confirmed bad habits who have no fixed residence, with whom communication could probably not be maintained, and patients who have in their own families somebody who takes the social worker's place.

Nearly one-half of the cases, then, both house patients and out-patients, should come at once directly under the social service. The different types of social service for which these cases indicate a need can best be illustrated by brief descriptions of patients who have been admitted to the hospital or examined in the out-patient department. Some cases require a different form of social treatment from others; often several forms are required in the same case. The main groups under which the work of the social service would seem to fall are: (1) After-care or supervision of patients at home, (2) advice to families of patients in regard to their care, (3) prophylaxis for other members of the family, (4) relief, (5) reference to a social agency or an institution, (6) inquiry to secure a history that is needed for the doctors' diagnosis, (7) inquiry to learn whether conditions can be secured suitable for the discharge of the patient.

These types may be illustrated as follows:—

1. Cases showing the need of after-care or supervision:—

CASE 1. John C—, 36 years old, engineer. Married at 21 and lived ten years with his wife, took a dislike to her and separated. Four years ago began to be annoyed by spirits. Delusions that the devil has got his soul. Hallucinated. Discharged after six weeks, improved. Diagnosis: Paranoid dementia praecox. His conduct had been good, and he was advised to go out to work again.

Problem: The patient should have been advised as to suitable employment and a proper place to live. If he had difficulty in finding them for himself, he should have been assisted. He should be visited to see whether his delusions return and whether he is capable of self-support.

CASE 2. Ethel B—, 23 years old, waitress. Sent from a general hospital where she had been with pneumonia. Had hallucinations and required restraint. Unable to walk. Father dead, mother in court for stealing. Discharged much improved, capable of self-support. Diagnosis: Alcoholic polyneuritis. To report to out-patient department and has not done so.

Problem: A good boarding place should have been found and employment under good conditions, and friends who could strengthen the patient's resolution to abstain from alcohol.

CASE 3. Eva A—, 33 years old, widow, one son. Sent to out-patient department by the court after arrest for drunkenness. Claimed she tripped on the street after drinking small amount of beer; that she rarely drinks enough to become drunk; has lived as housemaid in a minister's family. A brother is in an asylum as the result of drinking. Examination did not indicate chronic alcoholism. Her case was dismissed in court. She was advised to report in a month to the out-patient department.

Problem: The patient should be constantly in touch with someone who will make her realize her danger in continuing to drink. She should be helped to settle in new surroundings where the temptation will be less.

CASE 4. Amos R—, 26 years old, meat packer, single. Always of peculiar temperament; pious, liked to be alone, silent, a good workman. Two weeks before admission refused to talk, to move or feed himself. Diagnosis: Dementia praecox (catatonic episode). Remained two weeks and for the last ten days was in good physical and mental condition. Considered recovered. In two months was brought in by the police, apathetic and rambling. Was committed to an insane hospital.

Problem: The patient should have been under observation so that the return of his symptoms might have been detected at the earliest possible time, when he should have been brought to the out-patient department. His home conditions should have been looked into and changed if unfavorable to his recovery.

Case 5. Grace B—, 28 years old. Married, three children. Has been a bookkeeper. In Psychopathic Hospital with diagnosis of alcoholic hallucinosis for five weeks; returned in less than a month and stayed two months; readmitted after six months and remained seven weeks. Each time discharged recovered. Has lately lived apart from her husband who is a degenerate and toward whom she feels contempt and hatred. Is fond of her children who are staying with relatives. Her mother was in an insane hospital several years with manic-depressive insanity. Patient is weak, impulsive, pleasure-loving. Before her last admission she made a determined effort to hold a position in a hospital but under discouragement and worry she again succumbed.

Problem: After the first discharge employment should have been found for the patient, and she should have been advised where to make her home. She has no one in her family upon whom she can rely, and she is easily discouraged.

Case 6. Simon G—, 12 years old. Lives with his mother and father and one brother. Admitted to the hospital from out-patient department for observation. Father had syphilis. Boy is continually giving trouble. At four years stole money and hid it in the ground. Somewhat later held burning matches against the faces of younger children, and laughed at the burns. Several times chopped off door knobs with a hatchet; has thrown marbles through neighbors' windows; attempted to set fire to the barn; frequently loses a new article of clothing and shows no concern, though the family is not well-to-do; destroyed the gas meter. Mother can tell twenty or thirty incidents of his maliciously destroying things about the house. Lies about his acts, when there have been witnesses. Masturbates. Incites other boys to mischief and watches the results gleefully.

Problem: The family should have been induced to bring the boy to the hospital for treatment for syphilis, and advised about his training. His mental development should be closely watched, and he should be studied with the object of determining whether he is mentally defective.

Case 7. Edna B—, 19 years old. Living with married sister. Has had bad dreams and on waking loses power of walking until she can recall the dreams. Hears her grandmother, for whom she has a dislike, telling her to stick needles and pins into herself, has stuck many needles and pins into her breast. Admitted to hospital and discharged improved. Diagnosis: Hysteria. Continued to come to out-patient department, had recurrence of attack. Again recovered and went to work, getting back into her natural social life. Later reports she is well and working in a store, but cannot sleep.

Problem: Employment should be found that is not too exacting and is under good hygienic conditions. It should be arranged that the patient lead a regular life with the proper amount of recreation of the right character.

Case 8. Mildred D—, 14 years. Living with parents, brothers and sisters. Bright, capable, well-behaved child, rather sensitive nature. Has lately begun to have hysterical convulsions. Has been admitted to the hospital twice.

Father is a hard drinker and is violent and abusive when drunk. He preceded the family to this country and when the patient with her mother joined him four years ago, it was a great shock to her to find him a drinking man. She has come to have a terror of him when he is intoxicated. At other times he is kind. The mother is a very nice woman and all the children are of the same good character as patient. Patient has been working in a factory, although she wished to continue school, because the family needed her wages.

Problem: The father's drinking habits should be inquired into, and an effort made to cause him to improve. If this is not possible arrangements should be made for the patient to live away from home until she is stronger. It should be arranged with the family that she go to the trade school instead of returning to work.

Group II. Cases showing the need of advice to the patient's family:—

Case 1. Nora C—, 47 years old, married. On admission markedly depressed, apparently very weak, complained of many indefinite pains. At times feels that she cannot breathe if she does not swallow first. No hallucinations. After three days her sister, who was anxious for her to come to the hospital, insisted on taking her out. Provisional diagnosis: Neurasthenia.

Problem: The family's prejudice against the hospital should have been overcome so that the patient could have stayed until sufficiently recovered.

Case 2. James K—, 60 years old. Married 29 years ago, has seven children at home, oldest 22 and youngest 9, all boys except two girls, 18 and 14, and has a married daughter in New York. Patient's story: His wife was never kind to him but he bore with her for the children's sake, feeling that he would have them to depend upon in his old age. But with the exception of the girls, they have sided with his wife and treat him with disrespect and unkindness. His wife nags him continually and neglects his needs; has put him out of the house winter nights when he has slept on a bench in the park. When he comes home tired from work and goes to bed, his wife says he is drunk. He is a cabinet maker; has been in charge of six workmen and earned $24 a week, working five years at a time for at least two firms, but now that he is old cannot get as good positions as formerly. He sent his three oldest children through high school, and has had some of them given music lessons. Before he came to the hospital he turned on the gas to kill himself, feeling that he had nothing to live for. When he leaves he will not live again with his wife and will have nothing to do with his sons; but will work and give all the money he can spare to his two unmarried daughters.

Wife's story: Patient has always been a hard drinker, for the last two years has seldom been

sober. Has several times threatened the life of his wife and children and lately attempted suicide.

On admission had delusions that people were trying to choke him at night. Stayed a month and was discharged recovered. Diagnosis: Alcoholic hallucinosis. A month later returned, hearing voices and can not sleep. In two weeks mind again entirely clear.

Problem: It should be learned whether it is true that the patient's wife is harsh and nags him and his children are indifferent to him. If this is exaggeration he should be made to see the facts. His wife and children should be made to understand that kind treatment is essential and their coöperation should be gained to prevent further attacks.

CASE 3. John V—, 14 years old. Lives with parents and two younger brothers. Sent by the principal of the grammar school with the question to what extent he is responsible for his disorderly conduct. Out of 42 school reports of conduct only 2 were "good," 12 "fair," 28 "poor" or "very poor." His misconduct was said to be of a thoughtless kind but he was always in trouble. His father brought him to the out-patient department where he had a preliminary mental examination; but failed to bring him again and did not respond to a letter asking him to return for the completion of the examination.

Problem: The father and mother should have been seen and had explained to them the importance of discovering early whether mental defect may be an element in the boy's conduct.

Group III. Cases showing the need of prophylaxis for other members of patient's family.

CASE 1. Julius R—, 33 years old, widower, mechanic. One child, a boy of 15. Niece of 12 lives with them. The father, a brother and a sister are in insane hospitals in this state, and an aunt has been in an insane hospital. Since wife's death over four years ago, has gone on a spree every three months for a few days. Brought in by the police who found him in his back yard with a club looking for the people who had wired his house for a dictagraph to kill them. After a month in the hospital, had cleared up and showed no evidence of psychosis. Was discharged to the out-patient department on visit. Diagnosis: Alcoholic hallucinosis.

Problem: When there is such a history of insanity in the family, the patient's son and niece ought to be examined to see whether they show any mental abnormality. Other members of the family ought also to be looked up.

CASE 2. Walter A—, 17 years old. Living with parents and one sister 19, the only living child. Four died in infancy after premature birth, and there were two miscarriages. Sister had chorea a year ago. Father's mother and one sister died of "paralysis" and one of his brothers is "eccentric." Patient works in a provision store where his father is in charge but could not hold a job elsewhere. Stolid, indifferent, obedient, kind and well behaved. Sent to out-patient department by family doctor. Diagnosis: Congenital syphilis. Admitted to hospital for salvarsan treatment. Failed to report a month later as directed. Sister was not examined.

Problem: The history of "nervousness" in the patient's sister makes it important that she should be under observation. From the family history it is probable that some of the cousins should also be examined.

CASE 3. Ernest W—. Receiving treatment for tabo-paresis. Twelve years old. Lives with mother who is separated from father. One other child, a girl of 14, shows marked nervousness and a commencing process of tabes. Mother at doctor's suggestion brought her for examination, but failed to bring her for treatment.

Problem. The mother should be informed of the importance of treatment for the girl and should be persuaded to have it given, in the hope of arresting the disease.

Group IV. Cases showing need of relief:—

CASE 1. Miriam I—, 34 years old, married. Husband and two children, younger two years. Two years ago in very hot weather had a week when she imagined people were telling her what to do, crawled about the floor and tried to wash the black off the walls. Completely recovered according to husband. For three months previous to admission had been developing delusions and hallucinations of persecution. Brought in excited and irrelevant and became maniacal. After two months committed to an insane hospital unimproved.

Problem: How are the children being cared for? The father, an ignorant man, needs advice in making suitable provisions for two small children. The mother after her admission was not at any time rational enough to discuss the matter.

CASE 2. Rebecca E—, 6 years old. Father a tailor. Seven other children in family, oldest 16 years. Boy of 16 is described by mother as nervous and backward, and the baby, one year old, twitches. The first child, who died, was feeble-minded. Father can not earn more than $12 a week and has lost time through being sick. The family has had some public relief. Physically normal, markedly nervous. By mental tests child appears to be subnormal but it is not clear that she is mentally deficient.

Problem: The mother, seen at the clinic, is anxious and strained with the effort to keep the children fed and clothed, and cannot give this child the special care she should have. Sufficient income should be secured for the family, and all the children should be kept under observation.

Group V. Showing the need of reference to a social agency or an institution:—

CASE 1. Francis D—, 12 years old. Living with parents, father a bridge caretaker. Five other children from 18 to 7 years in the family. Brought by

school teacher because he is so nervous that he cannot attend school. Underdeveloped, undernourished boy. By Binet tests measures 9 years. Question is how much of his mental backwardness is due to his physicial condition? Advised summer in the country under good conditions.

Problem: The doctor's prescription could not be filled by the family, for they had no relatives or friends to whom they could send the boy for the summer. A children's agency should have been asked to give him special care in a boarding home.

CASE 2. Bertha B—, 25 years old. Bright looking, rather attractive. Has illegitimate child six years old in care of a charitable agency. During the past four years five social agencies had been interested in her; two physicians had examined her, one of whom had recommended commitment to a school for the feeble-minded two years before. Sent for examination by a college professor in whose family patient had worked who thought this physician's diagnosis was unjust to her. Examination showed her to be distinctly subnormal, probably a high-grade moron. Her social history was not secured until later and no action was taken. When the history was obtained it confirmed the diagnosis of feeble-mindedness. Meanwhile she was heard of staying with some friends, changing positions frequently, and keeping company with a married man. Finally she married a man who is considered "peculiar."

Problem: Efforts should have been made to secure the patient's commitment to a school for the feeble-minded. Now that she is married, she will probably never be committed, but will bear other children who may be feeble-minded.

Group VI. Cases showing the need of a history required for diagnosis.

CASE 1. Henry R—, 54 years old, storekeeper, married. Two grown sons and two grown daughters. Committed by the Probate Court on the statement of two physicians that he had violent outburst and homicidal tendencies and had carried weapons. The patient was orderly and tractable, at first unwilling to tell his whole story, finally gave the following history: His trouble is due to his wife's partiality for a lawyer with whom she has intimate relations, which he suspects to be immoral. This man posted her on points of law and she got control of part of her husband's business. She was successful and he was not; she domineered over him making him of no account in the family and denying him his natural rights. Their children joined with her against him. His sons have beaten him on several occasions. An unscrupulous doctor is conspiring with the family to have him committed to an institution. His wife has often threatened during the past year to have him adjudged insane and sent away.

The wife's story is that her husband always had a very bad temper which has lately grown worse. The present trouble is all because she took the lease of a lodging house in her name as she is a better manager than he and she found he was wasting the receipts from tenants. He has been grossly immoral. She has been true to him, but he is suspicious and jealous. He goes among the neighbors slandering her and her daughters.

Some inquiry by a member of the staff brought out the fact that the patient and his wife had for a long time kept an immoral house in the West End. Inquiry was not pursued and patient was discharged without diagnosis.

Problem: Are the patient's beliefs about his wife the delusions of a paranoid condition or are they facts? Can his wife's story be believed? The facts can be learned only by inquiry among people who know the family. Without these facts the patient's mental condition cannot be determined.

CASE 2. James R—, 37 years old, telegrapher. Married and has three boys 12, 10 and 3. Committed by the court for observation because he became excited in the court room.

Patient said that he was here because of family trouble and told the following story: A year after his marriage, 15 years ago, his wife's sister began to interfere in his domestic affairs. His wife is an angel outside but a devil at home and she and her sister want to get rid of him. His wife told him she had been unfaithful to him and he went away to New Hampshire. Came home on hearing that his wife was about to have him arrested for non-support. Continued to have trouble and was arrested this week for failure to provide in spite of the fact that he offered his wife money. In court he became greatly excited because everybody believed her and nobody believed him, and was sent to the hospital. He had been once before in an insane hospital where no definite psychosis was found. At that time he had attacked his wife when drunk. Patient gave no evidence of a psychosis while here and though it was believed that he might be insane, not enough evidence was found for commitment and he was discharged. He got a job on a boat, went home after a short cruise, and his wife immediately had him committed again to the psychopathic hospital, saying that he had threatened to kill her and the children and had broken the furniture. He says this is not true and his wife wants to get him out of the way. His condition is unchanged.

Problem: As the stories of the patient and his wife are contradictory, it is necessary to learn from others what their domestic relations have been, and whether there have been witnesses to his alleged outbursts.

CASE 3. Julia E—, 43 years old, married. No children. Married a year ago, separated after a month. Admitted relation since with a married man. Five years ago was for several weeks in a sanatarium and under court supervision for two years. Now committed by the court. On admission apprehensive and depressed. No hallucinations. Believed conscience was punishing her dreadfully for specific offences of sex nature of which she told. No delusions of any other nature. Discharged after three weeks by order of court to custody of her husband. Diagnosis not made.

Problem: Inquiry among relatives and friends was needed to secure information about

the temperament of the patient and her conduct and habits, in order to judge the importance of the symptoms she showed in the hospital. For lack of information she had to be discharged without a diagnosis.

CASE 4. Alice B—, 67 years old, widow. Sent for seven-days' observation by physician, who was called in after quarrel between her and sister with whom she lives, on statements of sister. Fifteen months ago she came to live with her sister whose husband had died leaving some money. Sister says now she does not think patient is insane, but patient thinks sister is insane and refuses to return to her. Is willing to remain as voluntary patient. Sister's lawyer's wife says sister has been insane for 30 years. Patient in the hospital shows no evidence of mental disease.

Problem: Inquiry should be made about the patient and her sister to learn whether either have given evidence of mental disorder in the past.

Group VII. Cases showing need of investigation to determine whether patient may properly be discharged:—

CASE 1. Julia K—, 20 years old, vestmaker. Parents dead. Lived with grandmother and two brothers. Brought by police because she had been excited for two days, tried to choke her grandmother and destroyed furniture. Diagnosis: Dementia precox (catatonia). Improved a gread deal and at the urgent request of a doctor was discharged in his care on visit. In two months shot herself; recovered from wound and was readmitted to Psychopathic Hospital. Transferred after four months to Boston State Hospital, improved.

Problem: The fitness of the family doctor to be responsible for the patient should have been investigated before her discharge and the living conditions to which she was to return should have been looked up. Then the hospital should have kept in touch with him and with the patient, so that she might have been brought back at the earliest signs of another attack.

CASE 2. Laura E—, 37 years old. Married 11 years, has two children, boy 10 and girl 6. Symptoms: Headache, numbness, palpitations, fear that she was going to die. Believed her husband unfaithful, had been abusive to her and she hated him. Told of sexual experiences of which she had been the victim since two years old. Discharged improved after two months. Diagnosis: Neurasthenia. In nine months returned in a maniacal condition and was committed to an insane hospital.

Problem: Inquiry should have been made to discover whether conditions in the patient's home were such that her improvement could be expected to continue. The grounds of her antipathy to her husband should have been discovered. If investigation showed that she ought not to return to him, she should have been helped to make arrangements to live elsewhere.

CASE 3. John A—, 21 years old. Single. Newsboy. According to his family left the house in the morning apparently normal. Brought in by the police. Had a knife with which he intended to kill a supposed enemy. Patient said he had heard voices for three years; knew two people who had been influencing him and giving him cramps. After two weeks claimed that he had been mistaken in his delusions and denied that he had them any longer. Discharged on visit at the request of a lawyer who agreed to see that he was taken care of. Diagnosis: Dementia praecox.

Problem: The lawyer's ability to assume responsibility for the patient should have been investigated and the plans for his care should have been known to be suitable. The patient is potentially dangerous, and the hospital should have kept in touch with him so that he might be brought back if his delusions returned.

What are the conclusions as to the function of social service in a psychopathic hospital? Is there a need for members of the staff whose whole duty is concerned with the patient in his social relations? Unquestionably there is much to be done outside the hospital in the care of the insane; and much of the information necessary to an understanding of mental disease cannot be obtained in the hospital. An estimate based on a study of 100 cases in the hospital and 100 cases in the out-patient department indicates that the cases needing social service from the hospital will fall into the groups illustrated above as follows: About 50% will require aftercare or supervision, 35% advice to the patient's family, 25% a history for diagnosis, 15% investigation to show whether the patient may properly be discharged, 5% prophylaxis for other members of the family, 5% relief, 5% reference to a social agency. Some cases will require more than one form of social service. It is not possible for the medical staff to cover this work. The doctor whose time is already filled with examination and treatment of patients and clinical research work has not the time to follow the patients beyond the doors of the hospital, or to make any systematic effort to obtain the facts of their past lives and present environment beyond what can be learned from relatives or friends who visit the hospital.

Complete and thorough histories are needed for scientific research in the correlation of social disorders and mental disorders. Since environment is so evidently a factor in producing mental disease and mental disease is so evidently a factor in producing social disorder, it would seem of great importance that the relation between mental abnormality and social conduct should be scientifically studied, and determined effort made to secure the case material for such study. It cannot be expected that the medical staff should devote a part of their time to collecting and studying this material. If a hospital acknowledges this object, an adequately organized social service staff is a necessary part of its equipment.

Without the social service, "the study and treatment of patients" in the Psychopathic Hospital in at least the majority of cases, must remain incomplete, and "scientific study" must be limited to purely medical subjects. So in order to carry out the aim of the hospital, held in view by the State Board of Insanity, since 1902, the social service has been planned as an integral part of the work. The beginning is being made with two visitors, who will carry only the proportion of cases that it is found they can cover adequately, and the expectation is that by the addition of other visitors, all the cases will be eventually covered.

Medical Progress.

PROGRESS IN PEDIATRICS. THE PHYSIOLOGY OF DIGESTION AND THE METABOLISM IN INFANCY. A SUMMARY.

By John Lovett Morse, A.M., M.D., Boston.

THE CALORIC NEEDS OF INFANTS.

It has been found by metabolism experiments and by the continuous observation of nursing infants that the average infant needs between 100 and 120 calories per kilogram of body weight during the first six months in order to gain properly in weight. After the first six months the organism works more economically and a smaller number of calories are sufficient, 75 to 100 calories per kilogram being enough for the average baby. Young babies will usually hold their weight on from 70 to 75 calories per kilogram, but cannot gain on this amount. Premature babies, on account of their larger surface area in proportion to their bulk, need rather more calories per kilogram of weight than do full-term babies. A certain number of babies need more than 120 calories per kilogram in order to thrive, some babies requiring as much as 140 or 150 calories.

It is far more rational to calculate the caloric needs in relation to the surface area of the baby than in relation to the weight. There are various formulae for determining the surface area which are approximately accurate. There are no figures, however, from large series of cases as to the average caloric needs of babies calculated on this basis. The figures as to the average caloric needs of babies have been determined, moreover, without relation to whether the babies were quiet or active. It has recently been discovered, however, that the active baby uses up many more calories than does the quiet baby and that, therefore, the caloric needs must vary with the activity of the individual baby as well as with its size.

THE METABOLISM OF FAT.

Fat is a very important source of energy to the infant because of its high caloric value. The large proportion of fat in human milk indicates how large a proportion of the total energy required may be advantageously provided by fat. The tolerance for cows' milk fat varies within wide limits. If an intolerance for fat is once established, it persists longer than that due to any of the other food elements. It is difficult to make up for a marked deficiency in fat by an increase in the carbohydrates in the food. Fat and carbohydrates do not serve, moreover, exactly the same purpose, the metabolic water formed from fat being much greater than that formed from the carbohydrates.

Effect on Gastric Motility. Nothing has so much influence on the time required for the emptying of the stomach as variations in the amount of fat in the food, the time required varying directly with the amount of fat. Raising the percentage of fat in the food, for example, from three per cent. to six per cent., more than doubles the time occupied in emptying the stomach. An excess of fat in the food may so retard the emptying of the stomach that stagnation of the gastric contents occurs. When the quantity of the fat is very large, selective retention of the fat takes place. Fat delays the secretion of hydrochloric acid and hence delays the establishment of the pyloric reflex. The delay in the secretion of hydrochloric acid interferes also with the closure of the cardiac sphincter. The food may, therefore, be pushed back into the esophagus by the peristaltic action of the stomach and regurgitation result.

Digestion of Fat. There is unquestionably a gastric fat-splitting ferment present at birth, which is active during infancy. There is some doubt as to how important this action is. In all probability it plays but a small part in the total amount of fat-splitting, which is chiefly accomplished in the intestine. The processes in the intestine are the same as in the adult. Not more than one percent. of the fat escapes splitting under normal conditions. Nature prevents, moreover, a very active participation of the gastric lipase in the splitting of the fat, because, when the casein is coagulated, the fat is entangled in its meshes. The casein has to be digested, therefore, before the fat can be reached by the digestive juices. This takes place slowly. Only a small amount of fat can be acted upon, therefore, at one time.

Absorption of Fat. Under normal conditions, fat absorption is extraordinarily good in health. Under normal conditions more than 91 percent. is absorbed, in some instances as much as 98 percent. The fat absorption is practically the same on cow's milk as on human milk. From eight percent. to 11 percent of the ingested fat is absorbed in the upper part of the small intestine, the absorption being nearly complete at the ileocecal valve. Under ordinary conditions

there is very little absorption in the large intestine, but under certain favorable conditions the large intestine is capable of absorbing large amounts of fat. There is much difference of opinion as to the form in which fats are absorbed, whether as fatty acids or soaps and, if as soaps, whether as the soluble soaps or the insoluble soaps. It is safe to say that at present this question is not settled.

Fat in the Stools. Practically all of the fecal fat comes from the food, not from the intestinal secretions. During the first few days of life as much as 50 percent. of the dried stools consists of fat. This amount may diminish to as little as 15 percent. as the babies grow older, although in some instances from 25 percent. to 40 percent. of the dried stool of the normal infant consists of fat. About ten percent of this fat is in the form of neutral fat, ten percent. in the form of soluble soaps and the rest in the form of fatty acids and insoluble soaps.

Results of an Excess of Fat. When there is an excess of fat in the food, and this fat passes from the stomach into the intestine, it combines there with alkalis, chiefly the earthy, to form the so-called "soap stools." The organism is, therefore, deprived of magnesium and calcium. More magnesium and calcium are lost, however, than can be accounted for by the binding power of the fatty acids. There is not as much interference with the absorption of fat under these circumstances, nevertheless, as would be expected. These stools are only found when there is not only an excess of fat but also a lack of carbohydrate in the intestine, conditions under which putrefaction of protein can take place. After the stools become acid, the fat is present in the form of soft, fatty curds. There is then no longer a loss of magnesium and calcium, but of potassium and sodium.

When there is an excess of the lower fatty acids in the intestines they may produce diarrhea. In these cases there is a great loss of fat in the stools. The fat under these circumstances is combined with the alkaline salts, especially sodium, not with the alkaline earths. A relative acidosis results, with an excess of ammonia in the urine. Even when there is a severe diarrhea, the calcium and magnesium may be well retained.

In normal babies in whom the fat absorption is normal, an increase in the intake of fat has no influence on the mineral composition of the feces. In conditions of chronic malnutrition, an increase in the fat in the food causes a considerable increase in the salt output through the feces. In such conditions the loss of mineral bases may be sufficient to cause a negative salt balance.

THE METABOLISM OF CARBOHYDRATES.

The carbohydrates comprise the sugars and starches. They are not tissue builders, but serve simply as sources of energy. The caloric value of the sugars and starches is the same. They make the digestion of protein more complete, however, and have a marked property of sparing nitrogen. When they are added to the food there is usually an increase in the nitrogen retention. When given in excess, on the other hand, they cause increased peristalsis, frequent stools and a considerable loss of nitrogen from the body.

The carbohydrates begin to leave the stomach almost immediately after they are ingested and pass into the intestine more quickly than the other food elements. They also hasten the passage of protein from the stomach into the duodenum.

SUGARS: *The Chemistry of Sugars.* Three different sugars are commonly used in the feeding of infants. These are lactose, or milk sugar, saccharose, or cane sugar, and maltose, or malt sugar. Maltose is never used in the pure form, because of its cost. The sugars which are ordinarily spoken of as malt sugars are in reality combinations of maltose and the various dextrins. These sugars are all dissacharides, lactose being a combination of dextrose and galactose, saccharose of dextrose and levulose, and maltose of dextrose and dextrose. The dextrins are bodies which are formed in the change from starch to maltose. There are a great variety of them and their exact composition is not well known. The dextrins being finally converted to maltose, their ultimate end is dextrose.

Absorption of Sugars. The dissacharides are not absorbed as such from the intestine under normal conditions, but are first broken down into their respective monosaccharides by special ferments. These ferments are maltase, saccharase (invertin) and lactase. They are formed in the mucous membrane of the small intestine and are all present and active at birth. Maltase is also present in the blood, the saliva and the pancreatic juice. The greater part of the digestion and absorption of the carbohydrates takes place in the upper part of the small intestine, but splitting and absorption may also take place in the large intestine.

The monosaccharides which are formed are taken up by the portal capillaries and carried by the portal vein to the liver where they are converted into and stored as glycogen, to be later reconverted by the maltase in the blood into dextrose and used as required. There is normally about one-tenth percent. of dextrose in the blood. A deficit of sugar in the blood is made up from the glycogen deposits. If hyperglycemia occurs as the result of some disturbance of the regulatory apparatus, the excess is eliminated in the urine. The carbohydrates are ultimately broken down into carbon dioxide and water. The various intermediary products which are formed during their disintegration in the body are, however, entirely unknown.

Energy Value of Sugars. The gross energy value of the various disaccharides is the same.

The net energy value of maltose may be, however, greater than that of the others in certain conditions of malnutrition in which the store of glycogen in the liver is depleted or exhausted. Dextrose after being absorbed can be immediately utilized, if necessary, without being previously converted into glycogen. The whole of the energy value of maltose, which is composed of dextrose and dextrose, is thus immediately available, while only one-half of that of the other disaccharides, which are only one-half dextrose, is available at once, the galactose and levulose having to be converted into glycogen before they can be used. Under normal conditions, in which the monosaccharides are all changed to glycogen before being utilized, this difference in energy value does not hold.

Assimilation of Sugars. When milk sugar is injected directly into the circulation it can be completely recovered in the urine. When cane sugar is introduced subcutaneously into animals, 65 percent. or more is excreted in the urine. The remainder is eliminated into the alimentary tract through the gastric mucosa, the salivary glands and the bile. Milk sugar and cane sugar are passed out of the system in this way because there are no ferments in the blood capable of converting these sugars. When maltose is injected it can be broken down by the maltase in the blood and retained.

If an excessive amount of disaccharide is introduced into the intestine, or there is a lesion of the intestinal wall, it will pass into the circulation before it is broken down into the monosaccharides. When the disaccharides reach the circulation in this way, their fate is the same as when they are injected directly into the circulation. All the lactose and the major part of the saccharose are eliminated unchanged in the urine, the rest of the saccharose being eliminated through the alimentary tract, where it may be broken down and partly or entirely utilized. The maltose, unless greatly in excess, is broken down and retained. The limits of assimilation of single doses of disaccharides in infancy are: lactose, 3.1 to 3.6 grams per kilogramme; saccharose, no data, but probably about the same as lactose; maltose, 7.7 grams per kilogramme. These limits are much higher than the amounts of sugar which a baby would receive in a single feeding of breast milk, or in a single feeding of any reasonable artificial food.

Sugar-Fever. It has been believed by many that sugar may cause fever. Leopold found that 43 percent. of the babies tested with lactose, 42 percent. of those with saccharose and 33 percent of those with maltose reacted with fever. This fever was, however, always accompanied by diarrhea, and in none of the cases tested in which the stools remained normal did the sugar cause fever. The recent experiments of Schlutz make it appear very improbable, moreover, that, even when there are lesions of the intestine, the rise of temperature is caused directly by the sugar.

Fermentation of Sugars and the Results. The disaccharides are all fermentable. Lactose undergoes lactic acid fermentation more readily than the other sugars. Saccharose undergoes alcoholic fermentation most easily, and butyric acid next most readily, while maltose is especially prone to butyric fermentation and next to alcoholic.

The maintenance of the normal infantile intestinal flora depends on the presence of a relative excess of carbohydrates in the food, the fermentation of which keeps the reaction of the intestinal contents acid. Lactose is broken down less rapidly and is consequently more slowly absorbed than the other sugars. It is, therefore, better fitted than the other disaccharides to maintain an acid reaction throughout the whole intestinal tract. Few organisms other than those normal to the intestinal tract of infants can, moreover, utilize lactose before it is broken down, while many can utilize saccharose and maltose.

Certain organisms, such as the dysentery bacillus, form toxic substances from protein and innocuous substances from carbohydrates. These organisms always grow by preference on carbohydrates instead of protein, if both are present. Other organisms thrive on protein, but grow with difficulty on carbohydrates. The administration of an easily fermentable carbohydrate will change the activity of many organisms from the proteolytic to the fermentative type and will favor the growth of fermentative organisms which will crowd out the purely proteolytic forms. All the disaccharides are easily fermentable. Milk sugar is preferable to the others because, being more slowly broken down, its action is more prolonged.

The excessive fermentation of sugar may produce an unduly acid reaction of the intestinal contents and cause diarrhea and injury of the intestinal mucosa. When given in excess, lactose causes diarrhea more often than the other disaccharides, presumably because it is more slowly broken down and therefore stays in the intestines longer. The opportunity for the production of an excessive acidity and for injury to the intestinal wall is consequently greater. Under such conditions the sugars which are more quickly broken down and absorbed are more suitable.

STARCH: *Amylolytic Ferments.* Amylolytic ferments are present in the saliva and pancreatic secretion of the new-born infant, even if it is born prematurely. These ferments are present and active in the breast-fed as well as in the artificially-fed infant. The amylase of the pancreatic secretion is more abundant after the first month than before. The activity of the pancreatic amylase seems to depend, after the first month, more on individual peculiarities than on the age of the baby. The amount of the secretion is apparently independent of the character of the food. It is not diminished in atrophic conditions.

Digestion and Absorption of Starch. During the process of digestion, starch passes through the various forms of the dextrins and is finally converted into maltose. The maltose is then broken down into dextrose and dextrose before it is absorbed. The digestion of the starch is carried on in the stomach by the salivary amylase until its action is stopped by the hydrochloric acid in the gastric secretion. It is completed in the intestine by the action of the pancreatic amylase. The part played by the salivary amylase is, however, relatively unimportant.

Owing to the facts that starch is slowly broken down and that the maltose which is formed is quickly absorbed in the form of dextrose, there is only a relatively small amount of fermentable carbohydrates present in the intestine at any one time. Starch can be utilized, therefore, without causing disturbance in certain conditions in which the disaccharides cause fermentation.

Barley and oat starch are broken down more rapidly by enzymes and bacteria than are wheat and rye starch and are, therefore, more likely to cause acidity and fermentation. The fermentation of starches results in the formation of free fatty acids which exert a strong irritant action on the intestine. The injurious effect of these acids is the same whether they are derived from carbohydrates or fat.

Starch a Protective Colloid. Starch acts as a protective colloid. It thus prevents the formation of large casein curds and makes the digestion of casein easier.

A baby on a purely carbohydrate diet, or on one in which the carbohydrates are greatly in excess, receives much less salts than it should, such a diet being poor in salts. The consequent disturbance in the retention of salts and water results in impairment of the nutrition and a marked diminution in the resistance to infection.

THE METABOLISM OF PROTEIN.

Rennin, pepsin, hydrochloric acid, trypsin and erepsin are present and active at birth, even if this occurs prematurely. The infant is, therefore, fully prepared to digest protein as soon as it is born.

Pepsin, in the presence of hydrochloric acid, reduces the protein to albumoses and peptones. The trypsin of the pancreatic juice and the erepsin of the small intestine split these products into polypeptides and finally into amino-acids. The amino-acids are the end products of protein digestion. They are absorbed and reconstructed in the body into various substances, which are at present not completely understood. They are excreted by the kidneys, chiefly in the form of urea and ammonia.

The nitrogenous constituents of the food are almost entirely broken down and absorbed. The nitrogen of the feces is derived almost entirely from the intestinal secretions and from bacteria.

Protein, which is the only food element which contains nitrogen, is absolutely essential not only for the growth and development of the baby but also for its survival, since the body tissues can only be replaced and new tissues formed from the nitrogenous foods. A baby can readily die, although taking a food containing a sufficient number of calories, if its protein content is consistently below the minimum protein need. This minimum protein need lies between 1.5 grams and 2 grams per kilogram of body weight. The infant requires protein not only to replace wasted tissues, as does the adult, but also to build up new tissues. The demand for protein is, therefore, relatively greater than that of the adult. The eagerness of the infant to retain nitrogen is surprising. Growth seems to be as necessary a process for it as is the maintenance of the nitrogenous equlibrium for the adult. The baby will retain protein, if it is in any way possible. In the adult a diet of insufficient caloric value leads to protein loss. This is not the case in the infant. Instead of utilizing all the food ingested to furnish energy, the infant continues to use nitrogen for growth and sacrifices other tissues of the body. It retains a considerable amount of nitrogen even when the caloric value of the food is insufficient. That is, an infant will often grow in length while losing weight. It grows at the expense of its general nutrition. The infant can also use protein to furnish heat and energy. The caloric value of protein is the same as that of the carbohydrates. 28.6% of the caloric value is, however, given off as free heat, leaving only 71.4% available for the purposes of cell life. Protein is, therefore, not an economical form of fuel. The excretion of the products of the combustion of protein throw, moreover, an unnecessary load on the organs of elimination. Under normal conditions in infancy, especially when the food is human milk, protein plays but a small part as a source of energy.

Judging from the constant composition of breast-milk, the amount of protein required does not need to be much increased after the first few months until the end of the first year. The rate of growth diminishes as the wear and tear of the body increases and the two factors approximately balance each other. If an infant is temporarily deprived of nitrogen and then given it freely, it retains a large amount for a time. If an excess continues to be given, only the normal amount is retained Nitrogen retention is especially high during the convalescence from atrophic conditions.

The sparing of nitrogen and the storing of nitrogen are materially modified by the composition of the food as a whole. Fat does not spare protein, as might be expected from its high caloric value, but carbohydrates have a marked influence on the retention of nitrogen. The mineral salts must have a very decided influence on the storage of nitrogen, because the retention of nitrogen and of salts run parallel

with each other. The explanation of this fact is that salts are necessary for the building up of living protein material. Nitrogen cannot be retained unless they are available and is, therefore, excreted.

According to Orgler's experiments, healthy artificially-fed infants retain nitrogen as well or better than healthy breast-fed infants of the same age. Sick artificially-fed infants retain it as well as sick breast-fed infants. Healthy infants when given a properly modified cows' milk often retain nitrogen better than when on the breast. The utilization of nitrogen may be as good or even better in the artificially-fed than in the breast-fed.

It is evident, therefore, that the casein of cows' milk is not as difficult of digestion as has been supposed in the past. It may, however, appear in the stools in the form of large, hard curds. The loss of nitrogen in this way is, nevertheless, relatively slight and they are often present without any other signs of disturbance of the digestion.

No injurious effects have been proven to be caused by the presence of larger amounts of protein in the food than are ordinarily present in human milk. Holt and Levene have produced fever in infants by feeding foods containing a large amount of "synthetic" protein. They concluded that the fever was directly due to the action of the absorbed protein, and that the reason that it caused fever was because the food contained a large amount of protein without a sufficient amount of whey. Their food contained a large amount of salts, however, and it is possible that the fever may have been due to them. It is possible, too, that, in general, an excess of protein may increase heat production and thus cause an excessive stimulation of the metabolism of all the foodstuffs.

THE METABOLISM OF THE SALTS.

The salts are necessary for the maintenance of life. They are best absorbed and utilized when they are in organic combination with foodstuffs. The ash content of the newly-born infant is 2.7% of the total weight; that of the adult, 4.4%. About 4% of the mineral intake is retained in the early months and later only about 2%. Human milk contains about 0.2% of ash and cows' milk about 0.7%. The relations of the various mineral constituents to each other are materially different in the two milks. The salts are, moreover, not in the same organic combinations in the two milks. The special combination of the salts in the whey of human milk is more favorable to the absorption and retention of both the fat and casein of both human and cows' milk than that in the whey of cows' milk.

The ash intake in the artificially-fed is from six to nine times that in the breast-fed. The absorption of ash is from 15% to 25% better on human milk, but, on account of the larger intake, from four to six times as much is absorbed in artificial feeding. The greater percentage of absorption on human milk depends especially on the better absorption of calcium, magnesium and phosphorus. The retention of the salts of human milk is better than in the case of cows' milk. About one-third of the salts are eliminated through the feces and two-thirds through the urine when human milk is taken, while on cows' milk about one-half is eliminated in each.

There are marked changes in the metabolism of the salts as a whole in the disturbances of nutrition. In the milder conditions there is a slight decrease in retention of the salts, especially of the alkaline earths. In the more severe disturbances there is a very material loss, especially of the fixed alkalis. Calcium and magnesium are used up by the fatty acids in the stools, while, when there is diarrhea, sodium and potassium are lost. A condition of relative acidosis develops as the result. In the severest cases the nature of the disturbance of the salt metabolism is but little known, but is presumably a very serious one.

Calcium. There is almost always a sufficient amount of calcium in the food whether it is human milk or cows' milk. There is much more calcium in cows' than in human milk and the amount absorbed and retained is greater, although the percentage of retention is less. Only five per cent. to ten per cent. of the calcium ingested is eliminated in the urine, the remainder passing out in the feces, calcium being absorbed and then excreted into the large intestine. Calcium forms a much greater part of the artificially-fed than of the breast-fed infant's feces. It is largely in the form of the insoluble soaps. There is an abnormal elimination of calcium in the feces in rickets. There is also a diminution in the retention of calcium in the spasmophilic diathesis.

Iron. Both human and cows' milk are deficient in iron, and anemia would always develop in infants after a few months, if it were not for the store of iron present in the liver at birth. Iron is almost entirely eliminated through the feces.

Magnesium. The metabolic functions of magnesium and calcium are very much the same. The distribution of magnesium in the tissues is a little wider than that of calcium. Magnesium also makes up a considerable proportion of the total ash of bone. The absorption of magnesium takes place through the small intestine and is relatively high. It varies with the amount of fat in the food, less being absorbed when the food is high in fat. Magnesium is excreted in about equal amounts through the urine and feces.

Phosphorus. Cows' milk contains about five times as much phosphorus as human milk. 77% of the phosphorus of mothers' milk is in organic combination, however, while only 27.9% of the phosphorus in cows' milk is combined in this way. This relation of the organic to the in-

organic phosphorus is of importance, because the organism does not have the power of building cells containing phosphorus from the inorganic phosphates. The absorption of phosphorus on human milk is higher than on cows' milk. The amount of absorption increases with the amount of fat in the food. The presence of a large amount of calcium in the food results in the formation of insoluble salts of phosphorus on the intestine and thus prevents absorption. The organism retains phosphorus longer than any other mineral constituent except sodium chloride, presumably because of its close connection with the central nervous system. Phosphorus is eliminated in about equal amounts through the urine and feces, except when there is a large excess of calcium in the food, when it is eliminated through the feces. The retention of phosphorus is disturbed in rickets. It has a close connection with the intermediary metabolism, it being necessary to the proper functioning of the thyroid gland, the ovaries and the testes.

Sodium and Potassium. There is much more sodium and potassium in cows' milk than in human milk. There is more potassium than sodium in both of them. The absorption of these salts is good for both milks. The retention is better on human milk than on cows' milk, being 67% for sodium and 74% for potassium on human milk, while on cows' milk it is 15.27% for sodium and 16.12% for potassium. Both salts are eliminated in the urine and feces, 15% to 25% of the intake being eliminated in the feces. In disturbances of metabolism the fixed alkalis are retained as long as possible. An over-retention of potassium almost never occurs. It is probable that a retention of sodium chloride precedes water retention in edema. It is probable that an excess of sodium chloride may cause a rise in temperature. This occurs more easily in babies with disturbances of nutrition than under normal conditions.

Sulphur. There is about ten times as much sulphur in cows' milk as in human milk. Ninety per cent. or more is absorbed from both. Absorption takes place through the small intestine. The retention of sulphur is much better when human milk is taken than when cows' milk is taken. Sulphur is eliminated almost entirely in the urine, but a small part is eliminated into the large intestine. The retention of sulphur is somewhat diminished in rickets.

The various salts, with the exception of iron, are present in sufficient quantities and in the proper proportions in human milk. In most modifications of cows' milk there is an excess of salts. This excess is usually unimportant in the feeding of normal infants, but may play an important part when there are disturbances of the nutrition. Little is known as to the conditions in which the salt content of the food should be changed or to what degree each or all of the constituents should be varied.

Book Reviews.

The Sensory and Motor Disorders of the Heart. Their Nature and Treatment. By ALEXANDER MORISON, M.D., F.R.C.P. New York: William Wood and Company.

Morison has written a very interesting book of some two hundred and fifty pages. The fact that the style is somewhat controversial detracts little from the interest or the value of the book. Morison allies himself strongly with the neurogenists. While some of the book is obviously special pleading, yet the author has a strong array of facts to support his case. The first part, on the nature of cardiac action, is based considerably on his own researches and is the best part of the book. There can be little doubt of Dr. Morison's extensive clinical experience, but the clinical part is not as succinctly stated as the parts dealing with pathological anatomy and pathological physiology.

Modern Surgery, General and Operative. By JOHN CHALMERS DACOSTA, M.D., LL.D.; Samuel D. Gross professor of surgery, Jefferson Medical College, Philadelphia; surgeon to the Jefferson Medical College Hospital; surgeon to St. Joseph's Hospital, Philadelphia; fellow of the American Surgical Association; member of the American Philosophical Society; Membre de la Societé International de Chirurgie; Member of the Medical Reserve Corps, U. S. Navy, etc. Seventh edition, revised, enlarged, and reset. With 1085 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company. 1914.

DaCosta's "Modern Surgery" was originally written in 1894. Every single year since that time, with the exception of 1897, it has been either revised, reset, reprinted, or recopyrighted. Further testimony as to its popularity is unnecessary. The book is now a volume of more than 1500 pages and is, in reality, a small encyclopedia. The type is good and sharp. The paper is pleasant to the eye. The pictures are simple and very satisfactory. Throughout, it is interesting and accurate. Perhaps the most interesting page of the entire volume is the preface, in which the author's style and personality is best exemplified. In the reviewer's judgment, DaCosta's work is the best single volume text-book upon general and operative surgery which has been produced in English. It may be unhesitatingly recommended to all medical students.

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101 TREMONT STREET, BOSTON, MASS.

HOUSE SCREENING AS A SANITARY MEASURE.

IN the rural districts, the question of screening against insect pests assumes greater importance than in the towns and cities. This is because the house fly and the mosquito find in the country the ideal conditions for breeding. Theoretically the manure piles and the pools of stagnant water could be eradicated from the countryside as readily as from the streets of the cities, but practically a lack of money for sanitary improvements and the more or less sparsely settled population make this highly specialized sanitation which obtains in the cities impossible. Consequently in order to preserve health and comfort it is necessary to resort to the protection afforded by measures intended to keep the insect pests out of the dwellings. On first thought it would seem that such a simple question as screening windows and doors was hardly within the province of the physician. However a little consideration will serve to show that in reality this is a problem in preventive medicine well worthy the careful attention of the country doctor. In order to be a safeguard at all screening must be effective. Half-way measures are of little avail. One of the neglected matters in this problem is the time at which screens are first put up. In the early spring a few flies appear and no attention is paid to them. About ten days later these flies commence to lay their first batch of eggs and then in another ten days the first large swarm of flies make their appearance. Then the people commence to put up the screens, which should have been up two or three weeks earlier.

This screening, undertaken at a date which is entirely too late, is apt to be hurriedly done and to be deficient in many ways. Few people realize the ease with which flies and mosquitoes can find the loopholes in the barrier erected against them. One of the chief of these consists in small holes which have rusted through the mesh of a cheap screen left over from the previous summer. Another is the space left between the door and the jamb, which results from the warping of the light framework. One of the most important of the openings is that which is found in the space between the sliding sashes of adjustable window screens, which are meant to slip in under the raised window and rest between it and the sill. Screens of this kind are almost never efficient. These mistakes in screening commonly arise from a mistaken conception of what constitutes true economy in the matter of screening material and framework. In the first place the frames should be solid and be made to last a lifetime for both doors and windows. Properly made frames can be refitted with wire mesh as often as required and should be a part of the specifications in every newly built house. When it comes to a consideration of the mesh, there is room for the indulgence of considerable leeway in the amount of money to be expended. A wire mesh that is fine enough to keep out every sort of bug and insect will also keep out too much air. As the mesh occurs in the market in four degrees of fineness, one can ascertain for himself which will more easily answer his purpose, and be influenced accordingly. However, it must be said that the ordinary mesh with twelve strands of wire to the inch is too coarse to keep out mosquitoes, and can only be made safe by so many coats of paint that the air is thereby largely excluded. The larger the mesh the coarser the wire, and consequently the longer the life of the screen, therefore one must try to find the coarsest wire and largest mesh which will exclude the insects which are a menace in his community. No. 14 wire mesh with one coat of paint will keep out the house fly effectually and it will also keep out the malarial bearing mosquitoes. This sized mesh can be bought almost anywhere in the United States at considerably less than $2.00 per 100 square feet. In the seaport towns where the Stegomyia calopus exists, a finer mesh must be used. In the sanitation of the Isthmian

Canal Zone, No. 18 was the one which was found the most effective. Whatever the size of the mesh desired the life of the screen can be lengthened by a coat of paint. But in this connection it must be remembered that small meshes readily stop up by paint, consequently it is better to get a size a little too large and reduce it by painting.

But even though the house be thus scientifically screened, the work will be ineffectual unless the details of springs on the doors and stopping of fireplaces be carefully attended to. Mosquitoes do not as a rule fly very high, but they will at times pass over houses, and when attracted by the open chimneys will often enter the house in this way. Keyholes are also another favorite way of entry. In fact, any small holes of any kind will attract the mosquito. Once having made his entry into the house by means of small holes the mosquito does not readily find his way out again, and hence a badly screened house, instead of becoming free from the pest, becomes a veritable mosquito trap, in which hundreds of the insects are imprisoned, and which is more dangerous to its human inmates than if it were not screened at all. There are many more details of screening which are well worth the careful attention of the physician who cares to make himself an authority on the prevention of disease, as well as its cure, but those we have mentioned should be sufficient to stimulate interest in this badly neglected subject.

MEDICAL LEGISLATION. REORGANIZATION OF THE STATE BOARD OF HEALTH.

IN the issue of the JOURNAL for May 21 (Vol. clxx, pp. 817-819) we printed in full the text of the proposed "act to create a state department of health and to amend the public health laws," with the Governor's special message on May 12 transmitting it to the legislature. In the same issue, and in other numbers of the JOURNAL, we have from time to time commented editorially on this bill (House No. 2598) and on the reorganization of the state board of health, which it involves.

Meantime, this bill has been under consideration by the House committee on ways and means, to which it was referred, and which, with two dissenting members, has finally voted to report it favorably, but with several amendments. The more important of these changes have been summarized as follows:—

"The provision in section 3 that the public health council created by the act shall meet at least once in each month, and at such other times as they shall determine by their rules 'or upon the request of any two members' is changed to read 'or four members and upon the request of the commissioner of health.'

"In the same section (section 3) the provision that the rules and regulations promulgated by the public health council shall have the force and effect of law remains, but the penalty is stricken out."

The first amendment seems good, the second rather unfortunate, since it merely invites disobedience of the rules by taking away the sting that makes their violation inconvenient.

"Section 4 originally provided for six divisions in the state department of health—namely, administration, communicable diseases, sanitary engineering, food and drugs, laboratories and child welfare, together with such other divisions as the commissioner of health may from time to time determine. The re-draft provides that there shall be such divisions as the commissioner may, with the approval of the governor and council, from time to time determine.

"The provision in section 5 of the original bill prescribing eleven specific duties which each district health officer shall, under the direction of the commissioner, perform, is simplified by providing that he shall perform such duties as may be prescribed by the commissioner, shall act as the commissioner's representative and, under his direction, secure the enforcement of health rules and regulations.

"Section 6, which originally gave to the public health council the right to decide that local health authorities were failing or refusing to enforce the laws and regulations to prevent the spread of contagious or infectious diseases, is changed in the redraft so as to vest that power in the commissioner's hands."

The first two of these amendments are in the interest of simplification; the third wisely aims to increase the power and authority of the health commissioner.

"A new section provides that present employees shall be continued in office until their successors shall be appointed and qualified or until removed by the commissioner.

"The bill carries an appropriation of $16,000 over and above the amount already appropriated for the state board of health for 1914. Some further minor changes may be made."

None of these changes importantly modifies the general purpose of the measure, but all are

concerned with matters of detail. It is earnestly to be hoped that the bill as amended may be passed by the present legislature, rather than that needful action on this important subject should be postponed to another legislative season.

On June 18 the redraft of this bill (now known as House No. 2742) was ordered by the House to a third reading on a rising vote of 102 to 27.

DANGERS IN THE USE OF ANTIMENINGOCOCCIC SERUM.

The old time death-rate from epidemic cerebrospinal meningitis was, in round numbers, 80%. Now it is 20%. This is solely due to the timely use of the antimeningococcic serum perfected by Flexner. All observers are unanimous in their opinion that this serum is effectual; and with the perfection in the methods of diagnosis by spinal puncture and microscopical examination of the withdrawn fluid, it is becoming more and more uncommon for cases of this disease to have progressed so far that the use of the serum does not effect a prompt cure.

However, it seems likely that the greater part of the 20% mortality is due to the fact that the diagnosis in these fatal cases has for one reason or another been delayed until after the third or fourth day of the disease. That some of this mortality is due to other causes cannot be denied. Chief among these are, first, an overwhelming infection and, second, disastrous effects due to the serum itself. The first of these causes is beyond our control. The second is more amenable to careful supervision.

From a study made by Hale (Hygienic Laboratory Bulletin No. 91) it was found that the possibility of death from the serum was twofold. The first of these was death due to increased intracranial tension from the injection of the serum itself. The second was due to the poisonous effects of the preservative tricresol, which is added to the serum. The symptoms of a dangerous increase of intracranial tension are an enormous rise in blood-pressure preceding a sudden fall and embarrassment of the respiratory centers. This increase in blood-pressure may rise to twice its former height. The practical danger from this source is, however, very slight indeed, as shown by Hale, experimenting with dogs and cats, who was able to produce death in this way in only a few instances out of a large number of attempts. With the usual precautions of injecting the required amount of serum slowly after a still larger amount of spinal fluid has been withdrawn, it would seem that an accident of this kind would be well nigh impossible. When we come to consider the effects of the tricresol, the question assumes a different aspect. Hale's experiments showed conclusively that this preservative was capable of causing death from respiratory failure. But there are certain danger signals which, if closely observed, will usually give ample warning of the impending catastrophe. As in the case of respiratory embarrassment from increased intracranial tension, the index of danger is to be found in the state of the blood-pressure. But, contrary to that condition, the change in blood-pressure consists in a steady fall. When the fall has reached a total of 20 m.m. in an adult having a normal pressure of 110 to 120 m.m. the danger point is approaching, and to avoid fatal poisoning of the respiratory centers by tricresol, the injection should at once be stopped.

The fact that the tricresol preservative carries with it a potential danger increases the responsibility of the physician administering the serum and makes it highly desirable that some more harmless preservative may be found. Experiments recently undertaken at the Rockefeller Institute by Auer* seem to indicate that some volatile antiseptic may be used with less danger than tricresol. He found that when 0.3 per cent. ether was added to the serum there was decidely less fall in blood-pressure and less respiratory embarrassment than when the tricresol was used. It appears that one of the chief advantages of using a volatile preservative, like ether or chloroform, consists in the fact that the preservative may be largely expelled from the serum by the simple expedient of heating the container just before its administration. Although Auer admits the danger from the tricresol preservative, it is plain to be seen that he considers it is one that is slight and easily to be combated. His experiments served to show that dogs are much more susceptible to the deleterious influence than are monkeys. As men and monkeys are much alike in their re-

* John Auer, B.S., M.D.: Journal American Medical Association, June 6, 1914.

actions to intraspinal injections, it would seem that Auer's experiments rather offset the dangers which are so apparent in the experiments of Hale on dogs and cats. At any rate the actually proven value of the serum is so great that its use should not be abandoned on account of the potential dangers of the preservative usually employed in its manufacture. This is especially true when the potential danger needs but to be understood in order to be largely prevented.

MEDICAL NOTES.

HONORARY DEGREES FOR PHYSICIANS.—At the recent commencement of Yale University the honorary degree of LL.D. was conferred on Dr. William Crawford Gorgas, surgeon-general of the United States Army; that of D.Sc., on Dr. Richard Pearson Strong, professor of tropical medicine in the Harvard Medical School; and that of A.M. on Dr. Fred Towsley Murphy, professor of surgery in Washington University, St. Louis; on Dr. John Howland, professor of pediatrics at Johns Hopkins University; on Dr. Henry Hun, professor of nervous diseases in the Albany Medical College; on Dr. Elliott Proctor Joslin, of Boston; on Dr. Edward Robinson Baldwin of Saranac Lake; and on Dr. Oliver Cotton Smith, of Hartford, Conn.

At the recent commencement of Brown University, the honorary degree of LL.D., was conferred on Dr. Charles William Eliot, president emeritus of Harvard; and that of D.Sc., on Dr. L. Emmett Holt, of New York.

At the recent commencement of Harvard University, the honorary degree of A.M. was conferred on Dr. Milton J. Rosenau, of Boston, who was described by President Lowell on this occasion as "Milton Joseph Rosenau, professor of preventive medicine in the Harvard Medical School; a physician whose aim is not to cure disease but to preserve health, and whose only patient is all mankind."

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.—The first annual meeting of the American Association of Immunologists was held on Monday of this week, June 22, at Atlantic City, N. J. Among the papers presented may be mentioned one by Dr. J. Whitridge Williams of Baltimore, on "Abderhalden's Pregnancy Test." The discussion of Dr. Frederic E. Sondern's paper on "The Influence of Vaccine Therapy on Blood Morphology" was opened by Dr. George P. Sanborn, of Boston. In the evening the presidential address was delivered by Dr. Gerald B. Webb, of Colorado Springs, Colo. The secretary of the association is Dr. Martin J. Synnott, of Montclair, N. J.

MUNIFICENT ENDOWMENT FOR MEDICAL EDUCATION.—The will of the late James Campbell of St. Louis provides that upon the death of his widow and daughter his entire estate, estimated at $35,000,000, shall revert to St. Louis University, "for the erection, equipment and maintenance of a hospital in St. Louis county for sick and injured persons and for the advancement of the sciences of medicine and surgery absolutely and forever." It is believed that this is the largest single gift ever made to any medical or educational institution.

MAINE MEDICAL ASSOCIATION.—The annual meeting of the Maine Medical Association was held at Portland on June 10 and 11. Papers were read by Dr. John Sturgis of Auburn, Dr. C. M. Robinson, Dr. C. H. Hunt and Dr. J. A. Spaulding, of Portland; Dr. B. L. Wright of Portsmouth, surgeon in the United States navy; Dr. Richard F. Chase of Boston; and Dr. C. W. Pillsbury of Saco.

BOSTON AND NEW ENGLAND.

LONG ISLAND HOSPITAL TRAINING SCHOOL.—The annual graduation exercises of the Long Island Hospital training school were held at the hospital on Saturday of last week, June 13. The principal address was made by Governor Walsh, who presented diplomas to a class of 13 graduating nurses.

NOTIFICATION OF PELLAGRA AND RABIES.—At its meeting on May 7, the Massachusetts state board of health voted to add pellagra, rabies, and German measles to the list of notifiable diseases, and declared pellagra and rabies diseases dangerous to the public health.

SMALLPOX IN BROCKTON.—Two cases of smallpox were reported last week at Brockton, Mass., both in unvaccinated non-residents of the city.

Harvard Dental Alumni Association.—The forty-third annual meeting of the Harvard Dental Alumni Association, held in Boston on June 15, was attended by about 500 members. Dr. Charles A. Jameson presided, and the principal address was delivered by Dr. E. H. Smith. The following officers were elected for the ensuing year: President, Dr. Harold DeW. Cross; secretary, Dr. Frank T. Taylor; treasurer, Dr. Charles T. Warner; executive committee, Dr. Leroy M. S. Miner; trustees for life membership fund, Dr. Horace L. Howe; committee on nomination and election, Dr. Walter A. Bradford, Dr. Maurice E. Peters and Dr. Charles E. Stevens. Dr. George A. Sullivan, of South Boston, has been appointed one of the three United States delegates to the International Dental Congress to be held at London in August, 1914.

Harvard Medical Alumni Association.—The annual meeting of the Harvard Medical Alumni Association was held in Harvard Hall at Cambridge, Mass., on Commencement Day, Thursday, June 18. After the meeting the usual spread was served in Thayer Hall. Dr. Arthur Brewster Emmons, 2nd, was elected secretary of the Association for a term of three years, and the following were elected members of the council: Dr. John B. Blake, of Boston, for three years, and Drs. Horace Binney and Channing Frothingham, Jr., of Boston, and Dr. Silas A. Houghton, of Brookline, for four years.

NEW YORK.

Abolition of Positions, Board of Ambulance Service.—At a meeting of the Board of Ambulance Service, held on June 10, a resolution was passed abolishing the positions of director, deputy director, and registrar. The action of the board is in line with the policy recently outlined by Charities Commissioner Kingsbury, and recommended by the Hospital Investigating Committee, to consolidate the various hospital boards. None of the offices abolished were held by physicians.

Interstate Park.—The new Interstate Park, which has been rendered possible by private munificence and state appropriations, will make 18,000 acres of natural woodland accessible to the people of New York and New Jersey, and will include a river driveway of unequalled scenery from Fort Lee, opposite New York City, to Newburgh, sixty miles up the Hudson. On June 11 the Bear Mountain tract, in the Highlands, a few miles below West Point, was visited by an inspection party, among which were Governor Glynn, Mayor Mitchel, and other public officials, and on June 14 this portion of the park was formally opened to the public. Camping privileges, boating on a beautiful lake, the "Bloody Pond" of Revolutionary fame, and other facilities for outdoor life and enjoyment are offered free of charge, and transportation by steamboat, meals, refreshments, etc., at minimum prices.

An Unsuspected Case of Smallpox.—The chief of the bureau of infectious diseases received something of a shock the other day, when a man who came to the offices of the bureau at the health department to ask for a certificate of health was found to be actually suffering from smallpox.

Bequests.—By the will of the late Dr. Everett Herrick of New York more than $140,000 is left to institutions and charitable societies. Among the bequests are $50,000 to the American Academy of Medicine,—$25,000 to establish an "Everett Herrick Library Fund," and $25,000 to establish an "Everett Herrick" General Fund"; $25,000 each to the New York Skin and Cancer Hospital and the Free Library at Easthampton, Long Island; and $10,000 each to the Society for the Relief of Widows and Orphans of Medical Men and the Association for Improving the Condition of the Poor.

By the will of the late Harris C. Fahnestock, president of the First National Bank, New York, $100,000 each is left to the Presbyterian and St. Luke's Hospitals, the New York Post-Graduate Medical School and Hospital, the Charity Organization Society, and the Association for Improving the Condition of the Poor.

Yale Medical School.—It is announced that the Yale Medical School, which hopes to form an alliance with the New Haven General Hospital, has received from the Brady family, of New York and Albany, a gift of $125,000 for the erection and equipment of a clinical and pathological laboratory, the building to be known as the Anthony N. Brady Memorial Laboratory. The family has also pledged $500,000

to establish an Anthony N. Brady Memorial Foundation in the medical school, on condition that Yale University in ten years obtains a total of $2,000,000 for medical school endowment and building funds, exclusive of gifts from the Brady family.

MILK AT OTISVILLE SANATORIUM.—In connection with its tuberculosis sanatorium at Otisville the City Health Department maintains a model dairy in which the cattle are all high-grade, tuberculin-tested Holsteins. With the establishment of a bacteriological laboratory at the sanatorium, arrangements have now been completed for regular weekly examinations of the milk supplied to the patients. The first bacterial count showed that the milk from the dairy contained less than 10,000 bacteria per c.c.

SPREAD OF TUBERCULOSIS.—In order to determine, as far as possible, the ultimate disposition of applicants refused admission to tuberculosis sanatoriums, and thereby to arrive at an approximate estimate of any bearing such cases may have upon the spread of tuberculosis, the following data concerning 165 rejected applicants who sought admission to the Otisville Sanatorium have been collected: Of the 165 patients, 66 had negative sputum and may practically be disregarded. A majority of these either did not show any clinical evidences of tuberculosis or were suffering from some other disease which overshadowed an insignificant tuberculous lesion. The remaining 99 all had positive sputum and were too far advanced to be admitted, although at Otisville more advanced cases are accepted than is usual at other sanatoriums. All of these were urged to obtain hospital treatment, but only 62 entered hospitals; 37 remained at large,—known active distributors of tubercle bacilli, and only 9 of these could be induced to attend day camps, where a moderate degree of control could be exercised. Nothing but an increase in the infirmary capacity of sanatoriums, the health department states, will provide for and protect the community from cases of this class.

MORTALITY FOR WEEK ENDING JUNE 13, 1914.—There were 1365 deaths and a death-rate of 12.75 per 1000 of the population reported during the past week, as against 1303 deaths and a rate of 12.65 during the corresponding week of 1913, an absolute increase of 62 deaths and of .10 of a point in the rate, which is equivalent to a relative increase of 11 deaths.

The following causes showed a decreased mortality: whooping-cough, diarrheal diseases under five years, organic heart diseases, and diseases of the nervous system. Those causes showing an increased mortality were typhoid fever, cerebro-spinal meningitis, acute bronchitis, lobar pneumonia, broncho-pneumonia, pulmonary tuberculosis and Bright's disease of the kidneys. The mortality from the following causes remained the same: measles, scarlet fever, diphtheria and croup, diseases of the digestive organs other than diarrheal diseases, other tuberculous diseases and violence.

Viewed from the point of age grouping, the deaths of infants under one year of age showed an increased mortality of 21 deaths, between one and five years a decreased mortality of 24 deaths, between five and sixty-five years an increase of 98 deaths reported, and over sixty-five years of age a decrease of 33 deaths.

The death-rate for the first 24 weeks of 1914 was 15.05 per 1000 of the population, as against 15.25 for the corresponding period of 1913.

Current Literature

MEDICAL RECORD.

JUNE 6, 1914.

1. KOSMAS, G. W. *Certain Aspects of the Midwife Problem in Relation to the Medical Profession and the Community.*
2. *HAIG, A. *Deficiency of Chloride of Sodium in the Etiology of Neurasthenia.*
3. CLAPP, H. C. *Can Consumption be Cured?*
4. SCHLAPP, M. G. *An Economic and Social Study of Feeble-Minded Women.*
5. MUNGER, C. E. *Angioneurotic Edema.*
6. RABINOWITZ, M. A. *Two Neurological Cases in Pediatric Practice.*

2. Haig discusses the sodium chloride deficiency of many asthenic conditions and suggests that lack of salt may be a determining factor in the causation of neurasthenia. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JUNE 6, 1914.

1. GRIFFITH, J. P. C. *Neurotic, Psychasthenic and Hysterical Children.*
2. LAPOWSKI, B. *The Abortive Treatment of Syphilis.*
3. *JUDD, A. *Tuberculous Peritonitis.*
4. LYNCH, D. J. *Decapsulation of the Kidney.*
5. YOOSUF, A. K. *Surgery in Modern Warfare.*
6. WHITALL, J. D. *Fracture of the Lower End of Humerus.*

7. Gillette, W. J. *Avulsion of the Scalp.*
8. Chase, A. F. *Ulceration of the Stomach and Duodenum from the Medical Standpoint.*
9. *Kramer, S. P. *Fatal Accidents Following the Injection of Antimeningitis Serum.*
10. Bram, I. *Predetermination of Sex.*

3. Judd describes his latest procedure in operating for tuberculous peritonitis. The intestines are thoroughly washed and the abdominal cavity flushed with a 50% solution of peroxide of hydrogen, and then with normal saline solution. He has obtained primary union in 100% of his cases thus treated.

9. Kramer is convinced that the sudden respiratory paralysis which has occasionally followed the subdural injection of antimeningitis serum is due to the phenol contained in the serum as a preservative. He considers any serum containing tricresol dangerous and he offers as a substitute formaldehyde in the proportion of 1 to 1000. This will preserve the serum and will not endanger the vital centers. [L. D. C.]

The Journal of the American Medical Association.

June 6, 1914.

1.* Williams, J. W. *Has the American Gynecological Society Done Its Part in the Advancement of Obstetrical Knowledge?*
2. *Jordan, E. O. *Typhoid Fever.*
3. *Cooke, A. B. *The Prevention of Surgical Shock and Postoperative Pain.*
4. *Goltz, E. V., and Brodie, W. D. *Results from the Use of Living Lactic Acid Bacilli on Diphtheritic Throats in Two Groups of Cases.*
5. *Satterlee, H. S., and Hooker, R. S. *The Use of Herudin in the Transfusion of Blood.*
6. *Murphy, J. B. *Arthroplasty for Intra-Articular Bony and Fibrous Ankylosis of Temporomandibular Articulation. Report of Nine Cases.*
7. Hartman, H., and Kindley, G. C. *A Case of Pseudomyxomatous Cyst of the Appendix.*
8. Fruenthal, H. *The Early Diagnosis of Lead-Poisoning.*
9. Auer, J. *The Effect of Intraspinal Injections of Serums, With and Without Preservatives.*
10. Falls, F. H., and Welker, W. H. *Appearance of Non-Colloidal Ninhydrin-Reacting Substances in the Urine Under Normal and Pathologic Conditions and During Pregnancy.*
11. Zinsser, H., and Hopkins, J. G. *The Viability of the Spirochaeta Pallida in Diffuse Light at Room Temperature.*
12. Hoskins, R. G. *The Practical Significance of the Adrenals.*
13. Sherman, DeW. H., and Lohnes, H. R. *Practical Study of Goat's Milk in Infant-Feeding as Compared with Cow's Milk.*
14. Carter, H. S., Granat, S., and DuPont, S. *The Hemaurochrome Reaction.*

1. Williams' paper is an interesting and analytical survey of the specialty of gynecology at present and in the past. He has large hopes for its broader development.

2. Jordan's paper is a clear exposition for the individual and community at large of the importance of early recognition of the disease, of the common sources of infection, of sanitary privies and of directions for avoiding infection.

3. Cooke's article merely emphasizes the value of Crile's principle of anoci association.

4. The authors find that the use of lactic acid bacilli hastens the disappearance of the diphtheritic membrane but does not produce cultures negative to the diphtheria bacillus

5. This article is of considerable interest and may prove of great practical value on further development.

6. Murphy's article is one of considerable length and well illustrated by drawings of technic and photographs of patients. [E. H. R.]

June 13, 1914.

1. Gorgas, W. C. *Recommendation as to Sanitation Concerning Employees of the Mines on the Rand Made to the Transvaal Chamber of Mines.*
2. *Lespinasse, V. D. *The Treatment of Hemorrhagic Disease of the New-Born by Direct Transfusion of Blood. With a Clinical Report of Fourteen Personal Cases.*
3. Estes, W. L. *Compound Fractures of the Bones of the Extremities.*
4. *Hirst, J. C. *The Routine Treatment of Puerperal Sepsis.*
5. Burrow, T. *The Psychanalyst and the Community.*
6. Smith, W. G. *Aneurysm of the Sinus of Valsalva. With Report of Two Cases.*
7. Gibbon, J. H. *The Treatment of Gall-Bladder Infections. With Report of Twenty-six Recent Cases.*
8. Mallory, W. J. *Gastric Hypertony and Gastro-Enterostomy.*
9. Portis, M. M., and Bach, I. W. *The Non-Specific Action of a Serum Prepared According to the Method of Beebe.*
10. Metzger, J., and Watson, S. H. *An Aid to Prognosis in Pulmonary Tuberculosis. A Simple Urinary Test. The Urochromogen Reaction of Weisz.*
11. Riggs, C. E. *Juvenile Paresis Treated by the Intraspinal Injection of Salvarsanized Serum. Report of a Case*

2. Lespinasse states definitely that direct transfusion of blood is the method of choice in hemorrhagic diseases of the new-born. It has cured where other methods have failed. It is never too late to transfuse.

4. This is a rather dogmatic statement of the author's own idea of treatment. It adds nothing new. [E. H. R.]

Surgery, Gynecology and Obstetrics.

June 6, 1914.

1. Brown, J. Y. *The Diagnosis and Surgical Technic to be Employed in the Handling of Acute Abdominal Conditions; Illustrating Many Interesting Points in Diagnosis and Technic with Original Drawings.*
2. *Davis, L. *Calculous Anuria, with Report of Two Cases.*
3. *Smith, R. R. *Final Results (After Five Years) in 192 Patients Operated Upon for Ectopic Pregnancy; with Special Reference to Subsequent Uterine and Repeated Ectopic Pregnancies.*
4. *Fort, R. E. *Excision of the Clavicle and First Rib for Malignant Disease.*
5. *Albee, F. H. *Original Surgical Uses of the Bone-Graft. A Report of 250 Cases.*
6. Martin, W. *Composite or Fibro-Epithelial Tumors of the Lips.*
7. Cuthbertson, W. *An Improved Gilliam Operation for Uterine Displacements.*
8. Hoffman, F. L. *The Educational Value of Cancer Statistics to Insurance Companies, the Public and the Medical Profession.*
9. Cary, E. *Death of a Full-Term Foetus Due to Constriction of the Umbilical Cord by Amniotic Bands; Rupture of Amnion; Hydramnios.*

10. DYAS, F. G. *Clinical and Experimental Results of Streptococcic Infections with Special Reference to Arthritis and Its Treatment.*
11. CASE, J. T. *The Röntgen Findings in Gastric and Duodenal Ulcer.*
12. DAVISON, C. *Treatment of Fractures by Medullary Bone Splints.*
13. BATES, U. C. *A New Self-Retaining Abdominal Retractor and Wound Protector.*
14. BECK, E. G. *Present Status of Joint Diseases and Best Method of Treatment.*
15. HARTUNG, A. *X-Ray Findings in the Normal Stomach.*
16. VAN HOOK, W. *Varicocele Operations.*
17. BARTLETT, W. *A Clamp Intended to Facilitate the Suture-Anastomosis of Hollow Viscera.*
18. LYMAN, C. B., AND BERGTOLD, W. H. *Amniotic Membrane for the Prevention of Post-Operative Peritoneal Adhesions. A Preliminary Note.*
19. GEIGER, C. *The Electric Drill, Saw, Reamer, and Trephine in Bone Surgery.*

2. Davis in an interesting and well-presented article on calculous anuria, makes the following conclusions: The possibility of a reflex anuria cannot be absolutely denied, but convincing clinical, experimental and post-mortem evidence is still lacking. Analysis of these cases recorded in literature shows that at least in 90 per cent. either only one actively functionating organ existed, which was blocked, or that there was a blocking of both kidneys. The few cases reported as examples of reflex inhibition of an unobstructed but more or less diseased kidney, as the result of calculous obstruction of its fellow, are to be explained more rationally as the functional failure of an overloaded unsound organ. Convincing post-mortem and histological evidence of reflex inhibition of a sound kidney as the result of calculous obstruction of its fellow is lacking. Convincing clinical and experimental evidence is also lacking. From a practical point of view calculous anuria should be considered and treated as a purely mechanical problem. Operation should be resorted to at once in all urgent cases, the indication being to relieve obstruction, pyelotomy, when practicable, to be preferred to nephrotomy. Bilateral operation is indicated whenever the kidney first cut down upon seems inadequate by itself to sustain the work of elimination of the body.

3. Smith in a very careful and analytical paper finds that less than half of women having ectopic pregnancies have subsequent uterine children and about 14.6 per cent. repeat their ectopic pregnancies. The author removes the opposite even apparently healthy tube if further pregnancies seem unnecessary because of the danger of a repeated ectopic gestation.

4. The author believes that partial excision of the clavicle for sarcoma is a dangerous procedure, because of the great danger of metastases.

5. Albee's article, though not suitable for review, is of great practical value and well illustrated by plates and case histories. [E. H. R.]

EDINBURGH MEDICAL JOURNAL.

MAY, 1914.

1. BRAMWELL, B. *Diffuse Sclerodermia.*
2. HART, D. B. *Biometric Analysis of Some Insemination-Labour and Menstrual-Labour Curves in Certain Mammalia.*
3. MACGILLIVRAY, A. *Subconjunctival Cataract Extraction.*
4. FRASER, J. S. *Acute Suppurative Otitis Media, etc. Without Rupture of the Tympanic Membrane.*
5. GARRISON, F. H. *The Anglo-Indian Surgeons.*
6. TURNER, G. G. *Arthroplasty of Elbow Joint.*
7. BEESLY, L., AND PRICE, E. *Avulsion Fracture of Os Calcis.*

THE INDIAN MEDICAL GAZETTE.

MAY, 1914.

1. DRAKE-BROCKMAN, H. E. *Itinerating Dispensaries.*
2. BARNARDO, F. *Chronic Intestinal Stasis.*
3. WHITMORE, A. *The Relationship Between Laboratory and Clinical Work.*
4. *REINHOLD, C. H. *Sclero-Corneal Trephining for Staphyloma of the Cornea.*
5. NEVE, A. *Abdominal Surprises.*
6. FRASER, F. C. *A New Operation for the Cure of Vesico-Vaginal Fistula.*
7. MACGREGOR, R. F. *Ascaris Infection.*
8. HOOTON, A. *A Case of Bilharzia Disease.*

4. Reinhold reports the clinical details of 17 cases in which during 1913 he successfully applied Elliot's operation to the treatment of staphyloma of the cornea. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 2. MAY 19, 1914.

1. KISCH, B., AND REMETZ, O.. *The Surface Tension of Human Blood Serum and Cerebro-Spinal Fluid, and a Method for Its Determination.*
2. PFEIFFER, H. *The Occurrence of Proteolytic Ferments in the Serum of Scalded Rabbits. (Preliminary Communication.)*
3. STÜHMER, A. *Salvarsanized Serum. (Second Communication.)*
4. OLOFF, H. *Tuberculosis of the Retina.*
5. v. BAEYER, H. *A New Symptom in Tabes. (Preliminary Communication.)*
6. WEIL, S. *Thrombosis of the Mesenteric Veins.*
7. BRÜNING, A. *A Method for Excluding the Pylorus in Gastric Ulcer.*
8. KEIL, G. *Mesothorium in Gynecology.*
9. *RAPP. *The Treatment of Malignant Tumors with "Enzytol."*
10. ESCH, P. *A New Skin Reaction in Pregnancy.*
11. MAYER, O. *Typhoid-bacilli Carriers Discovered by the Examination of the Gall-Bladder at Operation.*
12. *HUISMANS, L. *Nephritis in Basedow's Disease.*
13. LOEWE, O. *The Treatment of Phimosis.*
14. TRAUGOTT, M. *A Method for Causing Venous Congestion.*
15. MENDE. *Nylander's Sugar Test.*
16. QURIN, A. *Eye and Head Electrodes for the Diatherm.*
17. KISSKALT. *The Necessity for Albumin and Meat Diets.*
18. SCHARNKE. *The Treatment of Delirium Tremens.*

9. Rapp reports on the effect of "enzytol" in the treatment of malignant disease. "Enzytol" is a boric acid salt of cholin, which is stable and non-toxic. It has been beneficial in various mouse tumors.

During the last year and a half, Rapp has made 25-30,000 intravenous injections of "enzytol" in malignant disease of different kinds. The dosage used has been from two to five or six c.c. of a 10% solution of "enzytol" diluted to twenty c.c. with physiological saline.

Rapp admits that his results are not striking and that they suffer from the fact that in the majority of the cases treated "enzytol" was combined with radium or other ray treatment. However, Rapp concludes that such a combined form of treatment in malignant disease produces subjective and objective results which are improving. Thus it is worth using until a better form of treatment is offered.

12. Huismans reports a case of sudden death which followed partial thyroidectomy for Basedow's disease. At autopsy a persistent thymus was discovered, and in the kidneys acute epithelial degeneration.

The similar cases which are reported have been attributed to a thyrogenic nephritis or to a condition of status-lymphaticus. Huismans believes that neither of these factors alone, accounted for his patient's death. It seemed more probable that the fatality occurred from a polyglandular intoxication which was exaggerated by the operation. Huismans considers that normally the secretions of the thymus and thyroid glands balance each other. Following the partial occlusion of the thyroid gland, an excess of thymus secretion entered the circulation, caused a severe intoxication and produced degenerative changes in the kidneys. Huismans suggests that in such cases, the complication may be avoided by the administration of thyroid tablets after operation. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 17. APRIL 27, 1914.

1. KOCH, J. *Concerning Experimental Rhachitis.*
2. *TIETZE, A. *Two Cases of Tuberculosis of the Liver.*
3. LESCHKE, E. *Concerning the Etiological Factor in Landry's Paralysis.*
4. LANGE, C. *Investigations in Abderhalden's Reaction.*
5. FRIEDBERGER, E., AND GORETTI, G. *A Contribution to the Theoretical Basis of Abderhalden's Reaction.*
6. FRIEDBERGER, E., AND GORETTI, G. *Experiments in the Toxicity of the Serum of Rabbits Immunized Against Sheep's Blood.*
7. *KOBLANCK. *What Forms of Carcinoma Lend Themselves Best to Treatment with Radio-active Substances?*
8. MANN, L. *Concerning Diathermic Treatment.*
9. SOLDIN, M. *Another Simple Method for Preparing a Milk Rich in Albumin.*
10. HERGENS. *Flexible Electrodes.*
11. DE PAGER, L. *On the Method of Boas for Detecting Blood in the Stools.*

2. Tietze reports two cases of children, each five years old, with tuberculosis of the lungs and also of the liver. In both the liver was much enlarged—in one case nodular, in the other smooth. There was also marked ascites. Talma's operation of omentopexy was done in each case, and the interesting fact was that there was no evidence of tuberculosis of the peritoneum or any other abdominal organ than the liver. Though the operation seemed to have no especially good result, both children were alive and in fairly good condition a year after they were first observed. In one of the two cases the diagnosis was confirmed by microscopic examination of a piece of the liver tissue.

7. As most favorable for radio-therapy the author mentions superficial growths on the face, cancer of the uterus, vagina and vulva, and also of the tonsil and parotid. Among those offering least hope are deep-seated growths of the face, and malignant tumors of the ovary and bones. Midway between the two groups he classes cancer of the breast, lungs, and gastro-intestinal tract. [R. H. M.]

No. 18. MAY 4, 1914.

1. NICOLAI, G. F., AND ZUNTZ, N. *The Filling and Emptying of the Heart During Rest and During Work.*
2. SAXL, P. *On the Proteolytic Enzymes in the Serum of Healthy and of Sick Persons.*
3. *WELEMINSKY, F. *Animal Experiments with Tuberculomucin.*
4. GOERKE, M. *Intranasal Surgery in Diseases of the Tear-Ducts.*
5. *TOBIAS, E. *On the Question of Idiopathic Intercostal Neuralgia.*
6. *WECHSELMANN, W. *A Case Diagnosed General Paralysis and Cured by Salvarsan.*
7. EINHORN, M. *A Method for the Introduction of Instruments Into the Stomach.*
8. KOCH, J. *Concerning Experimental Rhachitis.*
9. BRIEGER, L., AND SCHWALM. *Proving the Presence of Ferments and Anti-Ferments by Color-plates.* (*Löffler.*)

3. From the culture media of a series of selected strains of tubercle bacilli the author has been able to extract a substance which is a pure mucin, which he calls tuberculomucin, and which he has administered subcutaneously, both for prophylactic and therapeutic purposes, to a series of guinea-pigs and cows. In the guinea-pigs there was apparently no noticeable prophylactic effect, but in both animals there was a certain amount of beneficial action when the injections were given after the disease had been contracted. The number of observations have not so far been enough to warrant definite conclusions, and the effect on human beings has not yet been tried out.

5. This is a statistical review to show the infrequency with which the diagnosis of intercostal neuralgia is made. From 1400 neurological cases in a large hospital clinic Tobias could collect only five such cases, and of these three were clearly herpes zoster; from a large series of private cases only eleven came under this heading. He found it commoner in men than women, and more frequent on the left than on the right side.

6. Wechselmann reports a case diagnosed as either general paralysis or "syphilitic pseudoparalysis," apparently entirely cured by a series of twelve injections of salvarsan and intermittent treatments with mercury and potassium iodide. [R. H. M.]

IL POLICLINICO.

FEBRUARY, 1914.

MEDICAL SECTION.

1. *TEDESCHI, E. *The Influence of Muscular Fatigue upon the Functional Activity of the Vegetative Nervous System in Normal Persons and in Cases of Basedow's Disease.*
2. SILVAN, C. *A Contribution to the Study of Neoplastic Metastases in Nervous Centers, with a Score of Observations.*
3. SISTO, P. *Studies on Progressive Pernicious Anemia.*

1. Tedeschi studied the effect of muscle fatigue on the vegetative nervous system, as indicated by its response to adrenalin, pituitrin, pilocarpin and atropin. The tests were made in normal individuals and in persons suffering from Graves' disease. In each case observations of the blood and the urine, heart tracings and blood-pressure readings were made. The writer finds that fatigue produces a greater irritability and sensibility to drugs in the nervous mechanism controlling circulation, both in health and disease. Further than this his results are inconclusive. [L. D. C.]

SURGICAL SECTION.

1. PAGANELLI, G. *Appendiculo-Cecal Actinomycosis, with Psoitis and Metastases in the Liver.*
2. VECCHI, A. *Lymphendothelioma of the Bladder.*
3. *LAY, E. *Decapsulation of the Kidney.*
4. VACCARI, L. *Gangrene and Perforation of the Appendix in a Congenital Inguinal Hernia in a Boy Eighteen Days Old.*
5. LEOTTA, N. *Pericecal and Pericolic Adhesions.*

(*To be continued.*)

3. As a result of functional tests with methylene blue and potassium iodide after experimental renal decapsulation in dogs, Lay concludes that decapsulation does not disturb the normal permeability or emunctory function of the kidney or its ability to meet demands for increased work.

[R. M. G.]

MARCH, 1914.

MEDICAL SECTION.

1. *ANTONELLI, G. *Experimental Studies Concerning the Effects of Ovarian Castration upon the Blood.*
2. SISTO, P. *Studies on Progressive Pernicious Anemia.*
3. *FAGINOLI, A. *Symptomatologic Value of Krönig's Area of Resonance.*
4. BARBERIO, M. *The Preparation and the Use of Antiformin.*
5. COLESCHI, L. *Radiodiagnosis of Bilocular Stomach.*

1. Antonelli studied the effects of oöphorectomy in young bitches who had hardly reached sexual maturity. He found that this operation produced the following alterations in the blood: A considerable diminution in the number of the red corpuscles and in the amount of hemoglobin, with slight increase of color index, a diminution of globular resistance, a certain amount of leucopenia with lymphacytosis and relative increase in the number of mononuclears. These changes in the blood persist for about two months. The writer concludes that the ovaries in health have, by virtue of their internal secretion, a direct stimulative effect upon the erythropoietic and sometimes also upon the leucopoietic organs.

3. Faginoli discusses the area of resonance over the extreme apex of the lung, to which Krönig first called attention in 1889. The determination by percussion of the width of this "isthmus" is of practical value in the early diagnosis of phthisis for narrowing of the isthmus is a very early indication of apical infiltration. Examination of the respiratory apparatus is not complete without the mapping out of this area. [L. D. C.]

SURGICAL SECTION.

1. LEOTTA, N. *Mechanic Ileus in Appendicitis.*
2. *CIGNOZZI, O. *Mcgalocccum and Appendicitis.*
3. BECCHERLE, G. *On a Case of Pseudo-Neoplastic Tuberculosis of the Tendon-Sheaths.*
4. NOVARO, N. *Intestinal Invagination from Ascarides.*
5. *LEOTTA, N. *Pericecal and Pericolic Adhesions. (Conclusion.)*

2. Cignozzi makes clinical observations on two cases in which he did appendicectomy and cecoplication.

5. From his continued study of intestinal adhesions, Leotta concludes that in cases of soft adhesions, not extensive, and without constriction of the bowel, simple freeing of the adhesions is sufficient. In cases of extensive and solid adhesions, which have determined constriction or stenosis of the intestinal tract, a neostomy should be done, preferably a typhlo-transversocolostomy if the adhesions are associated with ptosis of the colon, otherwise a typhlosigmoidostomy. In very complicated cases, like some of Lane's forms, especially when associated with ileal reduplication and membranous pericolitis, resection of the intestinal tract may be indicated. [R. M. G.]

Obituary.

AMOS LAWRENCE MASON, M.D.

DR. AMOS LAWRENCE MASON, of Boston, died suddenly June 5, 1914, at Albany, N. Y., having been taken seriously ill with cardiac weakness while on his way from home to a fishing camp in Canada, which he annually frequented, for salmon fishing, of which he was very fond. Funeral services were conducted at Mt. Auburn by his cousin, Bishop William Lawrence.

Dr. Mason was born in Salem, Mass., April 20, 1842, and was the son of Rev. Charles Mason, rector of a church there. His mother was Susannah Lawrence, daughter of Amos Lawrence. He fitted for college at the Boston Latin School and at the private school of Epes S. Dixwell. He was graduated at Harvard in the class of 1863. Being the grandson of an eminent jurist, Hon. Jeremiah Mason, who was at one time United States senator from New Hampshire, Mr. Mason entered the Harvard Law School, but continued the study of law only half a year, then devoting himself to belles lettres for a year and a half, and to travel in France, Spain and Italy. He then returned home and entered the Harvard Medical School, from which he received the degree of M.D. in 1872. After studying a year or more in Germany he returned to Boston, where he practised his profession for many years, having also a summer practice, at one time in the White Mountains, and later at Bar Harbor, Maine.

He was visiting physician to the Channing Home for Incurables and for twenty years a manager of the Boston Dispensary. In 1877 he was appointed physician to out-patients, and in 1878 he became visiting physician to the Boston City Hospital, to which institution he gave a quarter century of active, zealous service.

Early in his professional career, from July 1, 1876, to Jan. 1, 1881, he was a member of the editorial staff of this JOURNAL, with his classmates, Drs. J. Collins Warren and George B. Shattuck, part of the time as assistant and part as associate editor.

Dr. Mason was president of the Suffolk District Medical Society in 1895 and for some time a councillor of The Massachusetts Medical Society. In 1898 he was president of the Boston Society for Medical Improvement. In 1891 he became a member of the Association of American Physicians, and in 1900 joined the emeritus membership of that society.

For twenty odd years he was a teacher in Harvard University, doing his work chiefly in the City Hospital wards, at first as instructor in auscultation, then as assistant professor, and finally as associate professor of clinical medicine, from which he retired in 1899. He continued his duties as visiting physician till 1903. He was then made senior physician till 1908, when he became consulting physician, virtually

an emeritus position, which he held at the time of his death. This gave a total continuous connection with the City Hospital of 36 years.

Dr. Mason was married to Louisa Steedman in 1874 and survived his wife by six years. He left one married daughter and two grandchildren. With this daughter he passed most of his winters in the South of late years, and his summers mostly at York Harbor, Maine. He was a member of the Massachusetts Society of Colonial Wars.

Besides writing a large number of medical papers, which appeared in various journals, he published in 1912 the "Memoirs and Correspondence of Charles Steedman (his father-in-law), Rear Admiral U. S. N., 1811-1890."

For twenty-five years Dr. Mason passed through his hospital wards daily during the period of his annual service. Few men have left there a stronger or more lasting impression. His good health and his conscientiousness contributed to make his daily hospital visit prompt, unfailing and unhurried. He made it a rule to give his personal attention daily to every patient.

In his relations with his colleagues of the medical and surgical staff he was ever ready to give and to receive counsel; and his hospitable manner of receiving views, not always identical with his own, was of a part with the courtesy which marked his every relation with his associates. In the deliberations of the staff his opinions were sane and sensible and were tersely but mightily expressed.

Several volumes of the Medical and Surgical Reports of the Boston City Hospital have his name among the editors, and he himself contributed numerous articles involving painstaking work. He also was ones of the editors of the history of the Hospital, which appeared in 1904, forty years after its foundation. Prior to the establishment of the "South Department" for contagious diseases, Dr. Mason took his turn of duty in the contagious wards of the main hospital, which were often much overcrowded. As a diagnostician, particularly in his favorite field of diseases of the chest, he was thorough and careful, and the autopsy room rarely refuted his accuracy. But he never would strain a point of diagnostic *finesse* at the expense of the strength or comfort of a very sick patient. His dealing with the patients as *persons*, even though they were of the social flotsam and jetsam, was always kindly and humane.

Dr. Mason accepted his responsibility for imparting his skill. For years he gave formal clinical instruction as professor of medicine in the Harvard Medical School. The hospital records still bear his pencilling in the margins, made before his clinics, and show the salient and pivotal facts which he wished to bring out in his discussion of the cases.

More intimate and more grateful than his formal instruction of the students in the amphitheatre and in the ward visits, was his fatherly manner of talk and of demonstration to the young men who served from year to year as his house officers. To their mistakes he was indulgent, of their oversights and negligences tolerant. Of him they learned lessons of patient study, of helpful therapy, medicinal and moral.

One of them, affectionately and piously, lays this wreath upon his tomb.

Miscellany.

AN IMPORTANT SANITARY PROBLEM.

During the last week in May there met at New York City a joint board of Canadian and United States sanitary engineers who were invited by the International Waterways Commission to advise standards of allowable pollution in the rivers connecting the chain of the Great Lakes. Some while ago Dr. A. J. McLaughlin, of the United States Public Health Service made an official survey of the entire Great Lake watershed, and at that time made the four following recommendations for remedies against the spread of disease in cities of that region by polluted water:—

"1. Safe water supplies, that is, water shown to be safe by daily bacteriologic examination.

"2. Supervision and control of water supplies by the state, to insure efficiency and a safe effluent (output of drinking-water) at all times.

"3. Control of sewage discharge within permissible limits, to prevent an unreasonable burden or responsibility upon filter plants.

"4. Prevention of pollution from vessels.

He recommended the formulating of two sets of standards for water:—

"1. Standards for filtered or treated water.

"2. Standards for raw (untreated or unfiltered) water at the intakes, which supplied the various lake shore cities."

Recently Prof. George C. Whipple, of Harvard, one of the three United States members of the board of advisors to the Waterways Commission, has discussed this subject at length, and his commentary seems to deserve republication in part as follows:—

"The particular task now before the commission is to decide what 'system of remedial or preventive works,' shall guarantee that 'waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other.'

"With the exception of the matter of controlling pollution by the discharge of sewage from vessels traversing the Lakes, the really international part of the commission's task is confined to the connecting rivers, namely, the St. Mary's River, connecting Lakes Superior and Huron; the St. Clair and the Detroit, between Huron and Erie; and the Niagara, between Lakes Erie and Ontario. The St. Lawrence,

through the Thousand Islands, may be added to the list. Along these rivers are a number of large cities and towns drawing drinking water supplies from these rivers, and getting from them a very bad and dangerous article indeed. Vessel pollution has made the water of the St. Mary's unfit for drinking use without treatment, even above the two cities of Sault Ste. Marie, on opposite sides of the boundary; while these two cities discharge their sewage into the river, and make its lower course, down to Lake Huron, and for some miles out into that lake, even fouler than its upper reaches. The American city of Sault Ste. Marie has had enormously high typhoid mortalities in recent years. In 1910 it had fallen to 23.7 per 100,000 inhabitants; but within the decade before that it had had mortality rates of 92.9, 115.9 and 172.9.

"Port Huron, at the mouth of the St. Clair, had in 1910 a typhoid mortality of 74.4. Detroit fares much better on account of having Lake St. Clair just above it on the waterway; but below Detroit the river of that name is grossly polluted by the sewage of the city, added to the constant defilement from vessels. Worst of all has been the city of Niagara Falls, where typhoid death-rates, due to drinking-water taken from the much polluted Niagara River, ranged for seven consecutive years above 126.6 per 100,000. This led to the recent installation of the two filter plants, as a result of which the typhoid fever rates have been much lower.

"One of the tasks now before the sanitary advisers to the Waterways Commission is to be the establishing of general standards of pollution of the boundary waters from which both Canadian and United States cities are practically compelled to draw their water supplies. As Dr. McLaughlin and I have already separately reported, the water supply problem for the lake cities which are not on or very near the connecting rivers is in almost every instance a local problem. The great bulk of the lake waters is notably pure and clean—free not only from disease-producing bacteria, but with a very scanty content even of harmless organisms. But the broad waters of the Lakes cannot be used for water supplies because it is not practicable to extend intake pipes or tunnels to points where the water is much more than seventy-five feet deep. This limits the length of intakes to distances which are often if not always within the range of polluting sewage from the very community the intake provides with drinking water. The longest intake on the Lakes is that of Cleveland, which is 26,000 feet long, and which extends about four miles from the shore. Each lake shore city therefore faces the necessity either of thoroughly purifying its sewage before it is poured into the lake,—which is impracticable for various weighty reasons— or of purifying either by filtration or disinfection the water supply it draws from the lake. The latter method is in the long run the cheapest and most efficient.

"Filters or disinfecting plants must not be overloaded, however; and here we have the main problem in connection with the waters of the boundary rivers. Water may be so grossly polluted that even disinfecting or filtration plants cannot purify them except at undue expense, and with too great a chance of disastrous breakdowns in the process. One obvious sanitary improvement is to check pollution of these rivers by sewage from vessels, which must be compelled to retain their sewage between river ports —and at ports, also, and made to discharge it where it will not endanger the water supplies of land communities.

"The problem as to the boundary rivers falls into several sub-problems. There is first to be considered how much pollution of these waters is compatible with thorough purification by adequate plants. Next, whether the existing plants, or such as the weakest of the communities affected can afford, can deal efficiently with this standard maximum pollution; and finally, what may need to be done in the way of more or less purification of the sewage from some of the cities to prevent their fouling the river waters beyond this allowable maximum of pollution.

"In the boundary rivers the problem is a health question of very serious importance. The solving of it can be carried by the commission only to the point of discovering all the facts, and making recommendations for improvement that are at once both adequate and within the financial capacity of the communities involved. After the standards have been set, and the recommendations made, there will be need of both official action on each side, and of a further campaign of education for the benefit of particular boards of health and health officers. While the situation of a considerable number of lake shore cities is bad, the gravity of the danger as a whole has in my judgment been much exaggerated. The problem is a local one for each community, and efficient purification plants have been built and successfully operated by a number of cities. Cleveland is to be commended for its recent action in deciding to filter its water supplies drawn through its long intakes, and to safeguard them still further by treating its sewage before discharging it into the lake. There is no valid reason why the water supply of every community cannot be made safe within an allowable limit of cost.

"The lesson of some of these plants, aside from the ability to ensure safe water supplies, is the need of competent superintendence, and on this head I would urge the recommendation of Dr. McLaughlin, that the operation and control of such plants be in the hands of competent graduates in sanitary engineering. His statement is worth repeating. He says:—

" 'The greatest obstacle to proper operation and control of plants has been the difficulty of securing the right man to place in charge of the plant. I have seen filter plants designed by our best engineers—perfect mechanism which if

properly handled would produce safe water—placed in the hands of an assassin who was a promoted stoker and absolutely ignorant of bacteriology or chemistry The best type of man for this position is a graduate in sanitary engineering. He will not only be conversant with the mechanical details of the plant, but will be able to adjust his chemicals according to the constituents and needs of the raw water. Most important of all, he will be able to make daily bacteriological examinations to determine the efficiency of purification. Nearly all the disasters due to sewage-polluted water supplies which have occurred were due to lack of daily bacteriological knowledge of the public supply or the inefficient operation of plants by unskilled men.'"

In view of the previous frequency and virulence of typhoid epidemics in cities drawing their water supply from the watersheds of the Great Lakes, the task of safeguarding and controlling these supplies becomes a sanitary problem of magnitude and importance.

YALE MEDICAL SCHOOL.

In the issue of the Journal for June 11 (p. 927) we commented editorially on the plans of the Yale Medical School for the celebration of its centennial, and for raising sufficient funds for its endowment. At the annual dinner of the Yale Medical Alumni Association, held in New Haven, Conn., on June 15, President Hadley announced gifts of $1,725,000 towards this sum.

"The family of the late Anthony E. Brady of Albany, N. Y., has advised the University of their determination to establish the 'Anthony N. Brady Memorial Foundation' of $500,000. It is provided that the income of $25,000 from this foundation shall be given annually for ten years to the university to enable the latter to declare operative at this time the agreement with the General Hospital Society and conclude an alliance between the New Haven Hospital and the Yale Medical School.

"If the university receives within this ten-year period a total of $2,000,000 for medical school endowment and building funds, exclusive of the gifts from the Brady family, the half million dollars will become the absolute property of the university. The Brady family has given $125,000 for the erection and equipment of a clinical and pathological laboratory.

"Toward the $2,000,000 sought for endowment the general education board has offered $500,000, provided $1,500,000 is secured by Jan. 1, 1916; unnamed donors have pledged $400,000 conditioned only upon the establishment of at least one memorial professorship in the medical school; Charles W. Harkness, '83, has pledged $100,000, and an unnamed alumnus adds another $100,000.

"President Hadley said only $900,000 remains to be raised for the endowment of $2,000,000 necessary to receive outright the $500,000 from the Brady family."

On Junt 19 it was announced that the anonymous gift of $400,000 is from members of the Lauder family of Pittsburgh, Pa., and Greenwich, Conn. The memorial professorship is to be the "Anna M. R. Lauder Chair of Public Health."

The formal exercises in celebration of the centennial of the Yale Medical School were held in Woolsey Hall.

"The introductory address was given by President Arthur T. Hadley, followed by the historical address by Dr. Walter Ralph Steiner of Hartford, who spoke on the subject, 'The Evolution of Medicine in Connecticut, with the Foundation of the Yale Medical School As Its Notable Achievement.' A formal address followed by Professor William Henry Howell of Johns Hopkins University on the subject, 'Premedical Studies in Their Relation to General and Professional Training.'"

The history of the Yale Medical School is interestingly sketched in a monograph published in conjunction with the celebration. A professorship in medicine was proposed at Yale in 1777, the Connecticut Medical Society was chartered in 1792; and the Medical Institution of Yale College was established in 1810 as the sixth medical school in the United States.

"In 1813 instruction in the Medical School was begun under Professor Nathan Smith, professor of the theory and practice of physic, surgery and obstetrics; Eneas Munson, professor of materia medica and botany; Eli Ives, adjunct professor of materia medica and botany; Benjamin Silliman, professor of chemistry and pharmacy, and Johnathan Knight, professor of anatomy.

"In 1814 the present South Sheffield Hall was purchased for the school, with the aid of a contribution of $20,000 from the state, and the first medical class was graduated."

WRECK OF A HOSPITAL SHIP.

Report from Glasgow, Scotland, states that the hospital ship *Maine*, presented to the British nation by American women during the South African war, was wrecked in the Firth of Lorne in a fog on June 17.

"The *Maine*, which was attached to the home fleet of the British navy, had a large number of patients on board at the time of the accident. All were placed in the ship's boats, where they remained until the arrival of other vessels summoned by wireless telegraphy.

"The *Maine*, as presented to the British navy in 1901, was the gift partly of President Bernard N. Baker of the Atlantic Transport Com-

pany and partly of the hospital ship *Maine* committee. The former presented the vessel, and the latter gave the elaborate fittings, which made the *Maine* one of the best-appointed floating hospitals ever constructed up to that time.

"The *Maine* was originally loaned by the Atlantic Transport Company, through its president, Mr. Baker, to a committee of American and Anglo-American women, of which Lady Randolph was chairman. The committee fitted up the vessel as a hospital ship, placed her in charge of American doctors and nurses, and sent her to Cape Town and Durban to care for the wounded and sick of the South African war. She received both British and Boer wounded, and afterward returned to Southampton with over 350 invalided British soldiers. She stayed there only nine days, being reëquipped with remarkable speed and sent back to South Africa to carry home another shipload of sick and wounded.

"It had been intended that the *Maine* should make a third voyage to South Africa, but when the crisis in China became acute it was decided that she could be used to better advantage in the Orient. She was therefore sent to Taku, and the *Maine* committee, through the United States representatives in Europe, informed the Powers of the departure of the vessel, and notified them that their wounded and sick would be cared for on her. Appreciative acknowledgments were made by all the Powers. The *Maine* returned from China in January, 1901.

"The ward capacity of the *Maine* was 210 beds. The surgeons and physicians, all of them first rank men from our best American hospitals, the nurses from the Mills training school, and the orderlies were all carefully selected. Despite the comparatively cramped quarters, modern scientific treatment had been carried out in the form of tub-baths for the cases of enteric fever, with gratifying results. By means of an admirable Roentgen ray apparatus, sent out from New York, valuable assistance had been obtained in the treatment of gunshot injuries, and in a well-equipped laboratory diagnoses of doubtful cases have been made by bacteriological examinations. A strange and happy fact to be recorded was that during the three weeks' voyage of this hospital ship home from South Africa the second time, not a single death occurred. After her return from China, as above noted, the ship was tendered as a gift to the British Government, and accepted in July, 1901. Since then she has seen constant service."

RECENT DEATHS.

DR. GEORGE PERLEY BRADLEY, who died of cardiac disease on June 11 at South Lancaster, Mass., was born in 1845. After studying medicine, he entered in 1869 the United States Navy medical corps, in which he served for 38 years, retiring in June, 1907, with the rank of medical inspector. He is survived by his widow.

DR. OTTO G. RAMSAY, who died on June 12 at New Haven, Conn., was born in 1869. He received the degree of M.D. in 1890 from the University of Virginia, and since 1899 had been professor of obstetrics and gynecology at the Yale Medical School.

DR. GEORGE DRESSER, a retired Fellow of The Massachusetts Medical Society, died at his home in Chicopee, Mass., on May 16, 1914, aged 76 years.

DR. SIMON MARX, a well-known gynecologist and obstetrician of New York, died on June 16, after a long illness, at the age of 49. He was graduated from the College of Physicians and Surgeons, New York, in 1884 and afterwards studied at Vienna, Berlin and Munich. He was formerly on the teaching staff of the New York Post-Graduate Medical School and Hospital, and at the time of his death was gynecologist to the Red Cross Hospital.

DR. FREDERICK F. R. BERLIN of New York died on June 14, at the age of 55. He was a native of Germany, and after coming to this country practised for some years as an architect. He then took up the study of medicine, and was graduated from the University and Bellevue Hospital Medical College in 1900.

DR. MAUS R. VEDDER, formerly a prominent practitioner in New York City, died on June 13 at his home in Caldwell, N. J., in his 80th year. He was a graduate of the College of Physicians and Surgeons, New York, in the year 1861. His son, Dr. Harmon R. A. Vedder, succeeded to his practice in New York.

DR. SIDNEY H. GARDINER of Brooklyn, N. Y., died on June 11, after an operation for appendicitis. He was born in Kingston, Ontario, on May 6, 1862, and was graduated from Queen's University, Canada, in 1889. He served for six years as adjunct surgeon to the Long Island College Hospital and was associate physician to Bushwick Hospital. He was a member of the Clinical Congress of Surgeons of North America and of the Kings County Medical Society. He is survived by his widow and by three daughters.

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